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1ST SPACE WING PAMPHLET 190-1
1 August 1990

A Visitor Guide

Headquarters 1st SPACE WING

PETERSON AFB, COLO.

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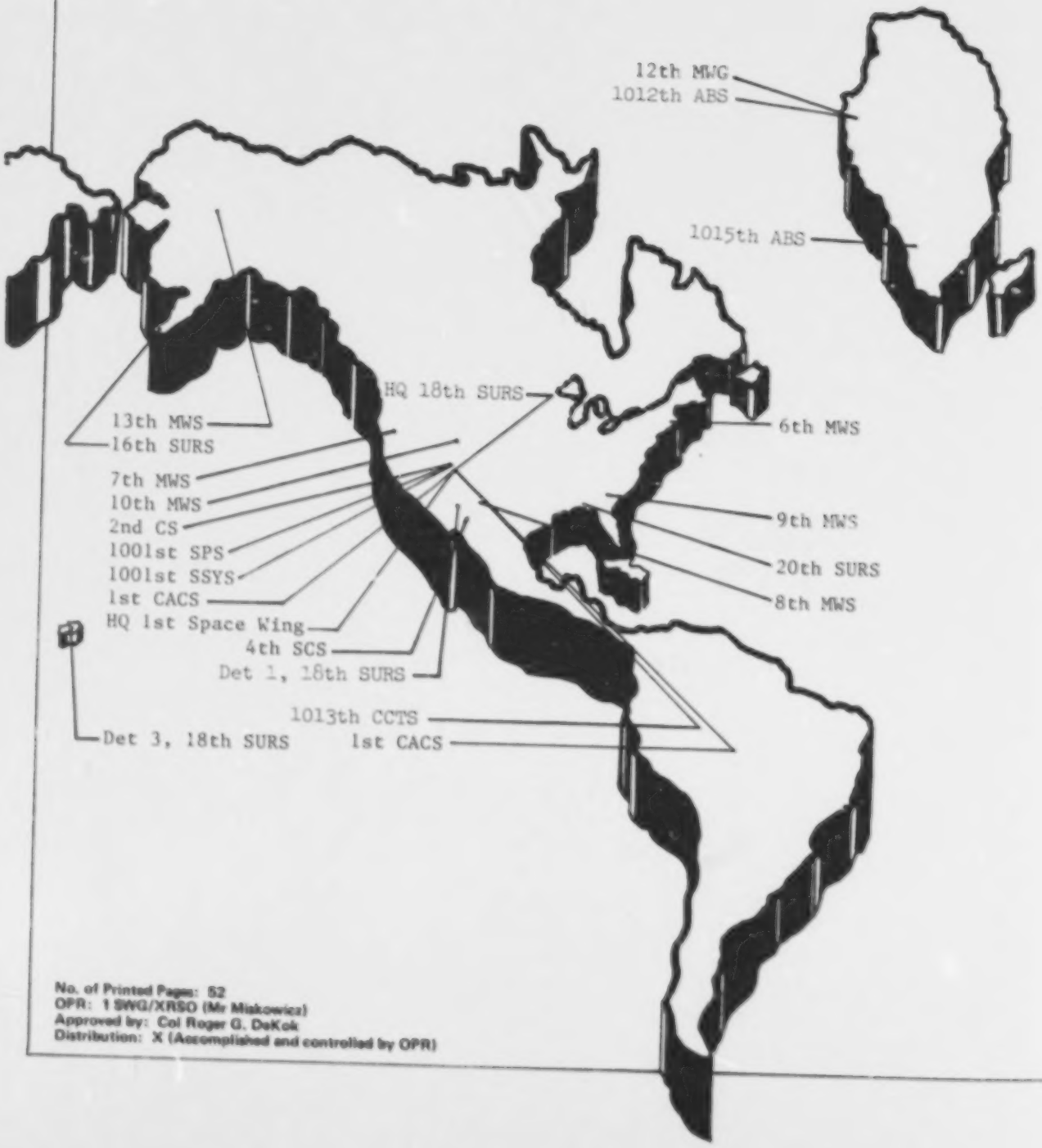
1st Space Wing units worldwide



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3rd CS
19th SURS
Det 2,
18th SURS
Det 3,
18th SURS
Det 4, 18th SURS
5th DSCS

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Mission

1st Space Wing was activated Jan. 1, 1983, at Peterson Air Force Base, Colorado, becoming the first operational space wing in the Air Force. The wing initially consisted of approximately 3,800 men and women within 22 units at locations dispersed throughout the globe that were formerly managed by the Strategic Air Command.

Five missions were assigned to the wing: missile warning, space surveillance, intelligence gathering, space communications, and weather support. While our weather mission was transferred to the 2nd Space Wing upon its activation in 1985, we retain the other missions. And, through the addition of new systems, we have steadily improved our capabilities. Our network of units provides warning against hostile attacks on the North American Continent, and our 45,000 daily space observations lay the foundations of Air Force Space Command's Space Catalog. Today the wing operates two Air Force Bases; four Air Force Stations; and 24 groups, squadrons, and detachments in seven foreign countries, ten states, and one commonwealth around the world.

History

Several systems are deployed to ensure the wing is able to perform its daily mission. The Ballistic Missile Early Warning System is supported by the 12th Missile Warning Group at Thule and Sondrestrom Air Bases in Greenland, and the 13th Missile Warning Squadron at Clear Air Force Station in Alaska.

Five units are part of the Sea Launched Ballistic Missile Warning System. They are the 6th Missile Warning Squadron, Cape Cod AFS, Mass.; 7th MWS, Beale AFB, Calif.; 8th MWS, Eldorado AFS, Texas; 9th MWS, Robins AFB, Ga.; and the 10th MWS at Cavalier AFS, N.D.

The Space Surveillance Network is supported by the 18th Surveillance Squadron. The squadron has headquarters at Peterson AFB, and has five geographically separated detachments. Detachment 1 is at Socorro, N.M.; Det. 2 is at Choe Jong-San, Republic of Korea; Det. 3 is at Maui, Hawaii; Det 4 is at Diego Garcia in the British Indian Ocean Territories; and Det. 5 is on the island of Saipan in the Commonwealth of the Northern Mariana Islands. The squadron operates the Ground-Based Electro-Optical Deep Space Surveillance Systems called GEODSS; the Baker-Nunn satellite tracking camera at San Vito dei Normanni AS, Italy; the Maui Optical Tracking Facility on the island of Maui in Hawaii; and the space surveillance radar on the island of Saipan. Additionally, the 20th Surveillance Squadron at Eglin AFB, Fla. provides similar dedicated space surveillance support.

Six contributing sensors at Haystack, England; Millstone, Maine; Kaena Point, Hawaii; Maui, Hawaii; Antigua, British West Indies; and Ascension Island in the South Atlantic are not assigned to the wing, but are managed by the wing staff and provide daily inputs to the surveillance system.

Finally, the network is also supported by the radars already discussed that comprise the BMEWS and SLBM detection and warning systems.

The wing's satellite communications system has four units. They are the 2nd Communications Squadron at Buckley Air National Guard Base, Colo.; the 3rd CS at Kapaun AS, Federal Republic of Germany; the 4th Satellite Communications Squadron (Mobile) at Holloman AFB, N.M.; and the 5th Defense Space Communications Squadron at Woomera, Australia.

Two squadrons have primary missions of intelligence gathering although both provide inputs to the Space Surveillance Network. These units are at the 16th Surveillance Squadron, Shemya AFB, Alaska; the 19th SURS at Pirinclik, Turkey.

Software support for all wing activities is managed by the 1001st Space Systems Squadron at Lowry AFB, Colo. The 2163rd Communications Group, Peterson AFB, Colo., with its squadrons, detachments, and operating locations, provide Air Force Communications Command support to the wing.

Data from the wing's worldwide units is passed in real time to Cheyenne Mountain AFB, Colo. The data is processed, correlated, and integrated with space, atmospheric, and intelligence information. The wing's 1st Command And Control Squadron is part of this process. This information, along with the commander-in-chief's assessment of an attack, is forwarded to the National Command Authorities and other agencies.

Today the wing is a much improved organization, capable of providing better day-to-day management of its subordinate units. It's comprised of approximately 2,300 officers and enlisted members, 300 Air Force civilians, and 2,500 contractor personnel. In addition, Canadian Forces personnel serve on the wing staff and at 10 other locations. U.S. Navy personnel work side-by-side with our combat operations crews at two locations. At two other overseas locations, our 1st Space Wing crews are supplemented by Turkish and Australian military members.

The 1st Space Wing's accomplishments are many. We have the right to be proud of our past, but we continue to do our best to meet the challenges that lie ahead. The Air Force's future in space is indeed bright, and the 1st Space Wing intends to keep its position as the world's premier space wing!

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FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

1st Command and Control Squadron
Cheyenne Mountain Air Force Base, Colorado

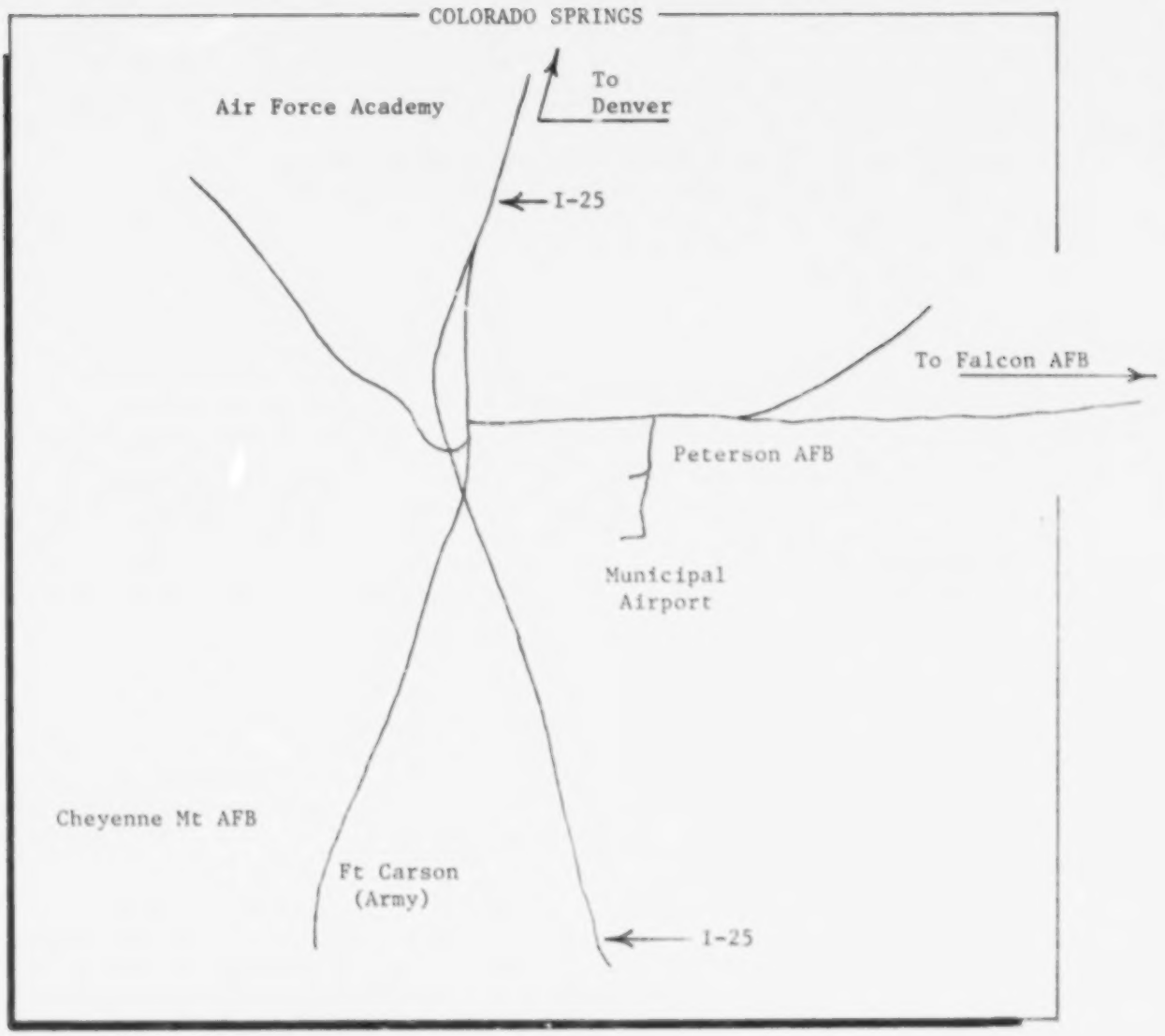
The 1st CACS was established Dec. 1, 1989, as the first Air Force Space Command operations unit within Cheyenne Mountain Air Force Base, Colo. The unit reports to the commander of the 1st Space Wing whose headquarters is at Peterson AFB, Colo., about 15 miles from Cheyenne Mountain.

The unit's mission is to operate Air Force Space Command's sole command and operations center which directs and monitors 27 space surveillance centers around the world as the designated "executive agent" of the commander-in-chief of the U.S. Space Command. Squadron members develop and maintain position data on orbiting earth satellites, then pass that data to U.S. agencies responsible for national attack warning, space surveillance, space defense, and space shuttle collision avoidance. In addition, the squadron compiles and distributes operational space surveillance information to agencies throughout the world.

To maintain and provide the operational data, members of the 1st CACS monitor and update information for more than 7,000 orbiting man-made objects, including foreign and domestic payloads, platforms, rocket bodies, and debris. Five three-person crews work in the Space Surveillance Center (SSC) in Cheyenne Mountain 24 hours-a-day, seven days a week.

The unit initiated a "deep space" search program in 1989 to better maintain position information for satellites in geosynchronous orbits (geosynchronous objects orbit at approximately 22,000 miles above the earth). This search program resulted in orbital analysts being able to reacquire more than 30 space objects which had been untracked for up to 18 years, usually because of their small size.

The 1st CACS performs other functions, as delegated by U.S. Space Command, to support the space surveillance mission. These functions include maintaining the communication files used by the NORAD computer system in Cheyenne Mountain, monitoring the status of the space surveillance data base, and providing direct sensor-to-SSC interface actions to provide real-time support for the space surveillance mission and space surveillance network sites.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2nd Communications Squadron
Buckley Air National Guard Base, Colorado

The 2nd Communications Squadron is on a 65-acre compound at Buckley Air National Guard Base, Colo., and is assigned to the 1st Space Wing of Air Force Space Command.

The mission of the 2nd CS is to manage and operate satellite interstation and intrastation communications equipment. Squadron crews are responsible for monitoring and controlling multi-million dollar satellites and ground station equipment. The unit sends data to the North American Aerospace Defense Command and United States Space Command at Cheyenne Mountain Air Force Base, Colo.; Strategic Air Command at Offutt AFB, Neb.; the National Military Command Center; and the Alternate National Military Command Center.

There are approximately 380 U.S. military, Canadian military, and U.S. civilian members assigned to the unit. Representatives from Aerojet Electro Systems Company, Aerospace Corporation, and TRW assist the unit as advisors and crew members.

Members of the 2nd CS work closely with many other Air Force units in accomplishing their mission. These units include the 2162nd Communications Squadron; Operating Location F, 12th Weather Squadron; Detachment 3, Space Division; and Sandia Equipment and Personnel Subsystems.

The 2nd CS was activated July 1, 1971, as part of the 14th Aerospace Force of Aerospace Defense Command. On deactivation of ADCOM, Dec. 1, 1979, the unit became a part of the 1st Strategic Aerospace Division, Strategic Air Command. The squadron came under the control of 1st Space Wing on May 1, 1983, as one of the first units transferred from SAC to the newly formed Air Force Space Command.

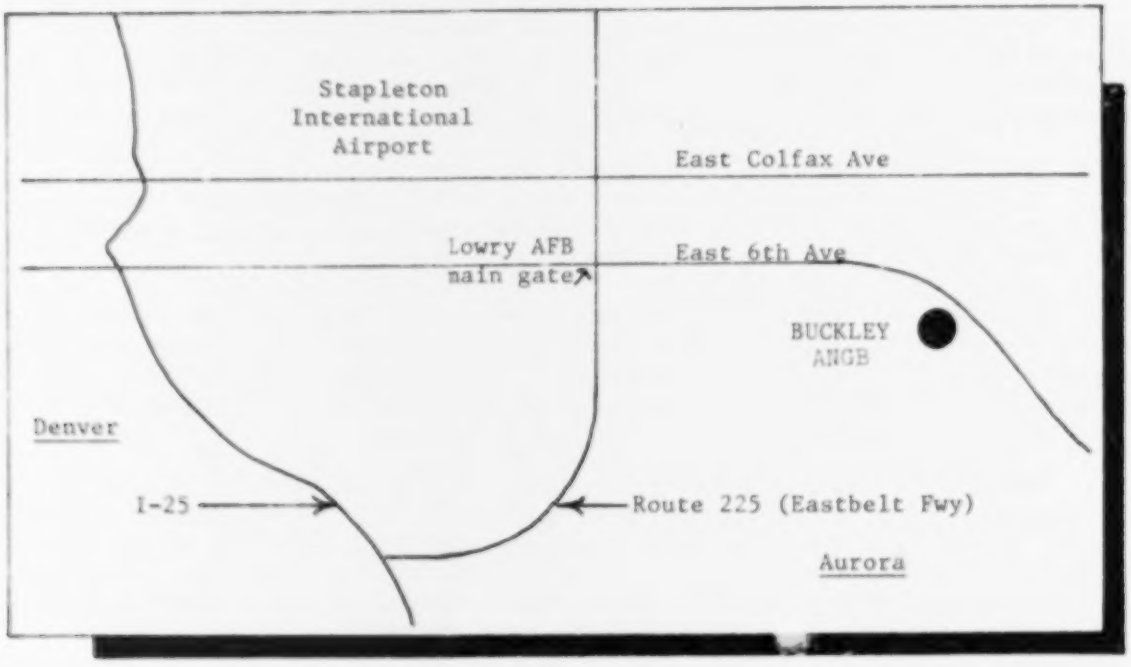
A distinctive feature of the 2nd CS compound is the white "golf balls" which house the satellite receiving antennas. Each of the antennas are 60 feet in diameter and weigh more than 55 tons. The large antennas (called satellite tracking sets or STSs) and the high gain amplifiers associated with them are needed because the satellite data they receive are transmitted at the same level as a Citizens' Band radio (about five watts), from 22,300 miles away.

The STSs are also used to send commands to the satellites. The STSs are controlled from a Satellite Read-out Station which controls the antennas to track the satellites either automatically or manually.

From the SRS the data travels to the Data Reduction Center for processing. Computers and associated equipment are installed in the DRC to process and log the incoming data. Satellite housekeeping data is inspected for satellite health. After processing in the DRC, the satellite data is sent to the Satellite Operations Center. Here the data is monitored, analyzed and, if necessary, sent to the system user.

Location: The 2nd CS is in Aurora, Colo, just east of the city of Denver.

Transportation: Stapleton International Airport is about 10 miles from Buckley Air National Guard Base. Drive south on Route 225 after leaving the airport. Turn left on East 6th Ave, also called the 6th Ave Parkway. East 6th Ave goes directly to Buckley ANGB.



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3rd Communications Squadron
Kapaun Air Station, Federal Republic of Germany

The 3rd Communications Squadron is responsible for management and operation of satellite interstation and intrastation communications equipment.

The 3rd CS is a unit of the 1st Space Wing, Air Force Space Command, at Peterson Air Force Base, Colo.

The unit forwards data to the North American Aerospace Defense Command and U.S. Space Command at Cheyenne Mountain AFB, Colo.; Strategic Air Command at Offutt AFB, Neb.; and the National and Alternate National Military Command Centers.

Kapaun AS is the second "home" of the 3rd CS. The unit was originally activated at the Cornhusker Army Ammunition Plant near Grand Island, Neb., July 1, 1978. Its first name was Operating Location AE, 46th Aerospace Defense Wing. The first few months in Nebraska were spent preparing for the arrival of mission equipment which was undergoing tests at Vandenberg AFB, Calif.

The equipment arrived in Nebraska in December 1978 for maintenance training, operational testing and evaluation, and computer program improvements.

In October 1979, the reorganization of Aerospace Defense Command brought a change in unit designations. Mission operators, security police, power production and medical technicians were assigned to Strategic Air Command and the unit became Operating Location AE, 1st Strategic Aerospace Division. Communications, operations, and electronic equipment maintenance personnel were assigned to Air Force Communications Command's Operating Location A, 2162nd CS.

On Nov. 1, 1980, Operating Location AE, 1st Strategic Aerospace Division became Detachment 6, 1st Strategic Aerospace Division, and Operating Location A, 2162nd CS became Detachment 4, 1st Aerospace Communications Group.

During an evening in June 1980, seven tornadoes hit Grand Island. Many unit members helped clean up the city and received the Humanitarian Service Medal.

During October 1982, the unit was deployed to the Federal Republic of Germany. Its mobile capability was proven when two C-5A Galaxys and two C-141B Starlifters transported site equipment, furniture, supplies and some people from Nebraska to Ramstein AB. The equipment was set up for operation on a 600 square meter area of Kapaun AS, near Ramstein AB and the city of Kaiserslautern. The unit is a tenant at Kapaun AB and operates under a standard host-tenant support agreement with the 316th Air Division, U.S. Air Forces Europe.

On May 1, 1983, the unit was transferred to the newly formed Air Force Space Command and designated Detachment 6, 1st Space Wing. The communications maintenance unit became Detachment 1, Space Communications Division.

On April 1, 1986, Detachment 1 transferred 24 of its manning slots to Detachment 6, along with the maintenance responsibility for Air Force Space Command's unique hardware. This led to the redesignation of Detachment 6, 1st Space Wing as the 3rd Communications Squadron on Aug. 1, 1986.

Authority to proceed with a proposed replacement of the squadron mission computer and associated satellite receivers and operator display peripherals was granted in October 1988. A seven-shelter system was designed and following a site survey in December 1988, the design was approved and construction schedules were set.

Site preparation began in June 1989 and consisted of expanding the perimeter fence, constructing pads for the shelters and foundations for a second mission antenna. Construction was completed in August 1989, and in September 1989, the first of the dual computer string arrived and was set up. The second string arrived in November 1989.

Following testing by Air Force Systems Command's Space Division, and the Air Force Space Command, the new mission system began operation on Nov. 28, 1989. The older prototype equipment was deactivated on Dec. 8, 1989.

Location: The 3rd CS is on Kapaun AS, Federal Republic of Germany. Kapaun AS is in the far west side of the German city of Kaiserslautern. Ramstein AB is six miles west of Kapaun AS and is Kapaun AS's host base. Ramstein AB is an American installation under the operational command of United States Air Forces in Europe. "K-Town," as Kaiserslautern is called by many Americans, is an international city with more than 108,000 inhabitants. The city is in the center of Germany's western State, Rheinland-Pfalz. The village of Ramstein, for which the base is named, is some eight miles west of Kapaun and the city of Landstuhl is about 12 miles to the west.

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Detachment 1, 18th Surveillance Squadron
Socorro, New Mexico

Detachment 1, 18th Surveillance Squadron, is in the northwest corner of the U.S. Army's White Sands Missile Range and approximately 30 miles southeast of the town of Socorro, N.M. Dedicated to space surveillance, the detachment was the first operational site for the Ground-based Electro-Optical Deep Space Surveillance system known as GEODSS.

The primary mission of the detachment is to gather tracking and identification data on deep space satellites, usually in orbits from 3,000 to 22,000 miles, and provide that information to the Space Surveillance Center at Cheyenne Mountain Air Force Base, Colo. Recent software upgrades also provide the system a limited capability to track low Earth-orbit objects. The GEODSS site performs its mission by using powerful telescopes, electro-optic cameras, and high speed computers. Because the site is an optical sensor, mission operations are limited to relatively clear sky conditions at night. The high desert of central New Mexico provides an excellent location for such operations. The detachment is one of four GEODSS sites around the world.

The GEODSS system uses three high-power telescopes, low light level television cameras, and a series of computers to find objects in deep space. Three of the GEODSS sites use two main telescopes with 40-inch apertures and a two degree field of view and an auxiliary with a six degree field of view. The exception is the site on the island of Diego Garcia which has three main telescopes.

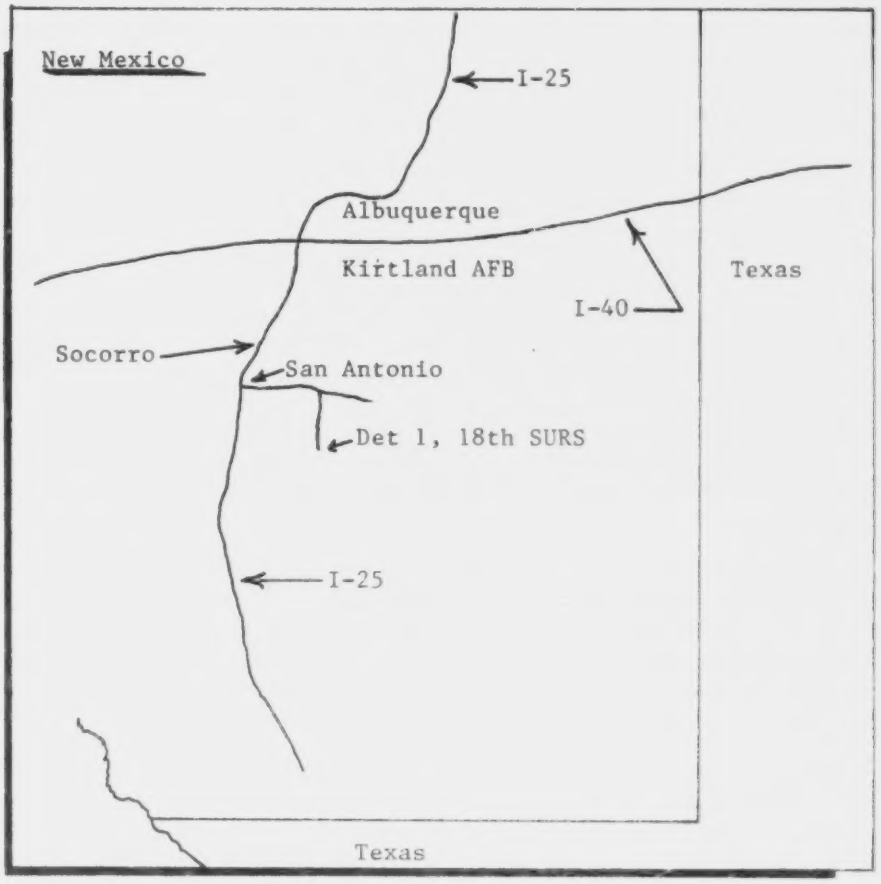
The unit was activated as Detachment 1, 1st Strategic Aerospace Division, Strategic Air Command, in April 1981 and reached initial operational capability on July 30, 1982. The detachment became part of the 1st Space Wing, Air Force Space Command on May 1, 1983. On Feb. 1, 1990, it was reassigned to the 18th SURS at Peterson Air Force Base on activation of the new organization.

The site is operated and maintained entirely by contract workers. The three Air Force members assigned have the primary responsibility for ensuring that the work required by the contract is performed satisfactorily. Assigned are one officer, two enlisted members and approximately 30 contractor personnel from the Planning Research

Corporation, which has held the contract since Oct. 1, 1983.

Location: The detachment sits on the northwest corner of the White Sands Missile Range on Route 525, 28 miles southwest of the town of Socorro. The terrain is dry and sandy, and the area's desert climate is hot and dry in summer, cool and dry in winter.

Transportation: The closest civilian airport is in Albuquerque, 100 miles north of the site. Kirtland AFB, the site's host base, is just six miles from the Albuquerque Airport. From Albuquerque, drive south on I-25 and exit at the town of San Antonio. Take highway 380 east to State Road 525. Take 525 south directly to the site.



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Detachment 2, 18th Surveillance Squadron
Choe Jong-San, Republic of Korea

Detachment 2, 18th Surveillance Squadron is atop Choe Jong-San Mountain, approximately 19 miles south of Taegu Air Base, Republic of Korea. The capital city of Seoul is 200 miles to the north. A dedicated space surveillance unit, the detachment operates a Ground-based Electro-Optical Deep Space Surveillance, or GEODSS, system.

The unit was activated as Detachment 2, 1st Strategic Aerospace Division, Strategic Air Command, on June 1, 1982. On May 1, 1983 it was redesignated Detachment 2, 1st Space Wing, Air Force Space Command. The unit was reassigned to the 18th Surveillance Squadron at Peterson Air Force Base, Colo., Feb. 1, 1990.

The site is one of four GEODSS sensors currently operated for the Air Force around the world.

Because the site has been operated under contract with a civilian firm since the detachment became operational, Air Force members assigned have had the responsibility for ensuring compliance with the contract. The primary mission of the unit is to detect and track satellites in deep space, more than 5,000 kilometers above the Earth, and transmit observation data to the Space Surveillance Center at Cheyenne Mountain AFB, Colo.

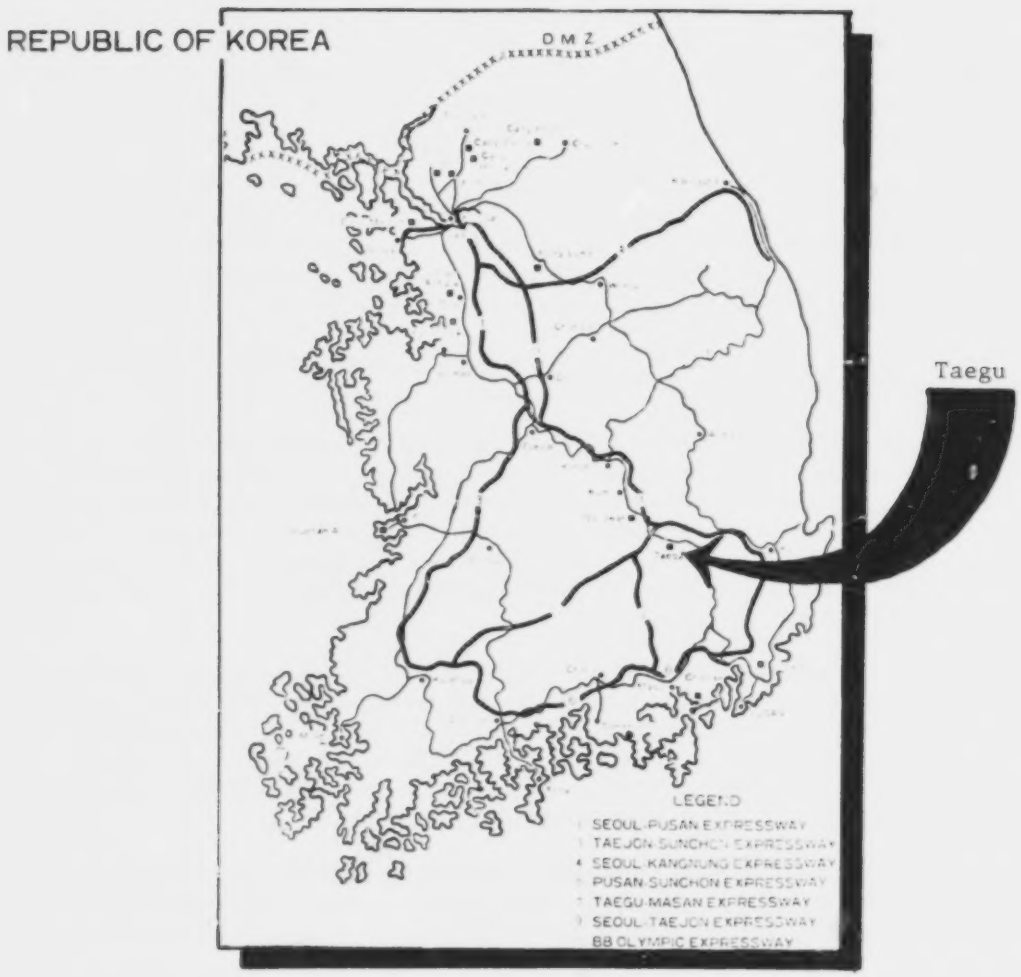
The GEODSS system uses three high-power telescopes, low light level television cameras and a series of computers to find objects in deep space. Three of the GEODSS sites use two main telescopes with 40-inch apertures and a two degree field of view and a 15-inch auxiliary with a six degree field of view. The exception is the Diego Garcia site with three main telescopes.

There are two enlisted and one Air Force officer, plus approximately 30 contractor employees at the site. Also assigned are some 25 Korean nationals who provide security and civil engineering.

Location: Detachment 2 is atop Choe Jong-San Mountain, approximately 19 miles south of Taegu AB.

Transportation: SATO will book travelers on a MAC flight to

Taegu AB via Yokota AB, Japan; or commercial air to Kimpo International Airport, Korea; or a MAC charter flight to Osan AB, Korea. At Kimpo Airport there are U.S. Army personnel that assist travelers in getting transportation to the U.S. Army's Young San Post. From there, commercial buses and trains to Taegu are available. Upon arrival at the Taegu bus station or the Dongdague Train Station (in the city of Taegu), travelers can take a taxi to Taegu AB. Travelers arriving at Osan should contact the base Traffic Management Office for assistance in obtaining transportation to Taegu AB.



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Detachment 3, 18th Surveillance Squadron
Maui, Hawaii

Detachment 3, 18th Surveillance Squadron, is on the island of Maui in the state of Hawaii, approximately 90 air miles east of Hickam Air Force Base. The site is atop the 10,023 foot summit of Mt. Haleakala, a dormant volcano. The unit has two officers and two enlisted personnel who perform quality assurance evaluation.

The four Air Force members' primary missions are to ensure that the contractors who operate and maintain the Maui Optical Tracking and Identification Facility, known as "MOTIF," and the Ground-based Electro-Optical Deep Space Surveillance (GEODSS) system comply with their respective contracts.

The Maui GEODSS site is one of four around the world. The system uses three high-power telescopes, low light level television cameras and a series of computers to find objects in deep space.

MOTIF and GEODSS send positional and space object identification data on deep space objects to Cheyenne Mountain Air Force Base, Colo. Additionally, MOTIF has a near-Earth detection and tracking capability and the ability to provide classical (film) and infrared imaging. Both sensors are part of the Space Surveillance Network.

The unit was activated June 1, 1979, as Operating Location AA of the 46th Aerospace Defense Wing to aid in the MOTIF transition into the North American Aerospace Defense Command/Aerospace Defense Command, Spacetrack Network. On Oct. 1, 1981, the unit became Detachment 3, 1st Strategic Aerospace Division of Strategic Air Command. On Oct. 1, 1982, after installation and checkout of the GEODSS, the unit was assigned permanent quality assurance evaluation responsibility for the GEODSS and MOTIF contracts.

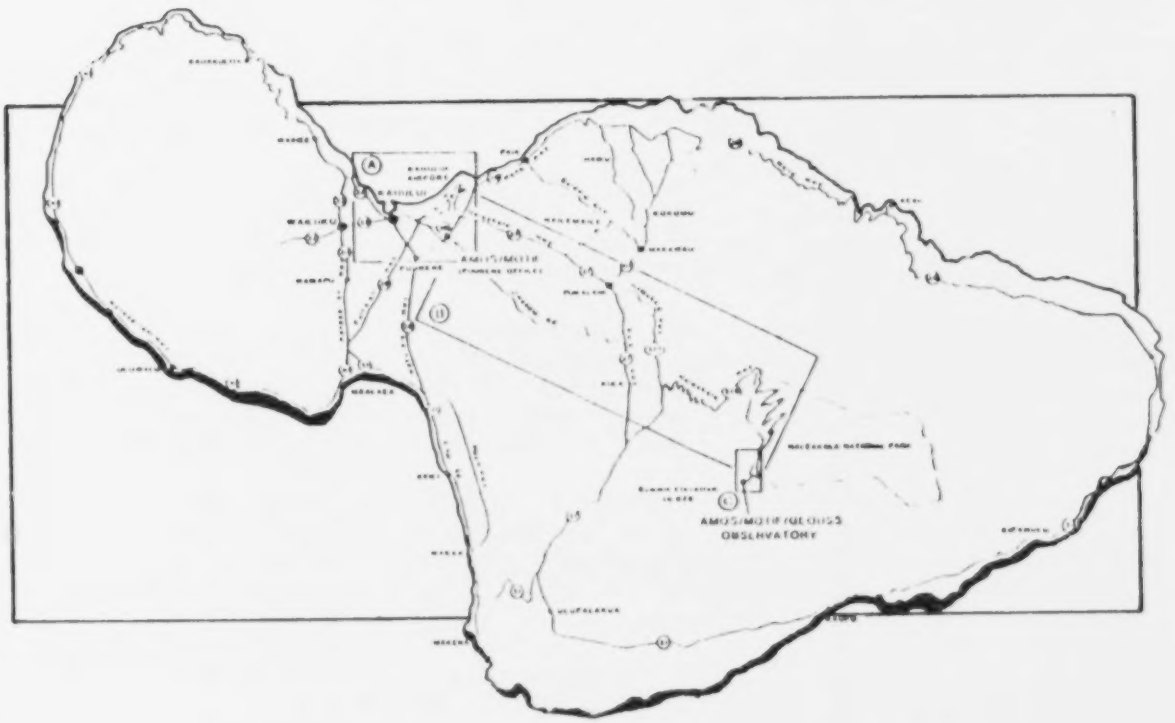
In May, 1983 the unit became Detachment 3, 1st Space Wing, Air Force Space Command. The unit became Detachment 1 of the 18th Surveillance Squadron on Feb. 1, 1990.

In addition to the Mt. Haleakala observatory, where the majority of quality assurance evaluations and contractor activities are accomplished, the unit maintains an office at sea level where unit

administration, management and quality assurance evaluation functions are performed.

Location: Detachment 3 is atop Mt. Haleakala on the island of Maui. Maui is 90 air miles east of Honolulu and Hickam AFB.

Transportation: There are three airports on Maui. Before departure, travelers should ensure that SATO books them all the way to Kahului Airport, through Honolulu International. Visitors should arrive at Honolulu, then change to one of the local inter-island carriers. Auto rental booths are directly across from the baggage claim area at Kahului Airport. Government ground transportation is not available.



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1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

Detachment 4, 18th Surveillance Squadron
Diego Garcia, British Indian Ocean Territories

Detachment 4, 18th Surveillance Squadron, is a dedicated space surveillance unit which operates a Ground-based Electro-Optical Deep Space Surveillance System commonly called GEODSS.

The mission of Detachment 4 is to detect and track space objects at geosynchronous altitudes and transmit the results to the U.S. Space Command at Cheyenne Mountain Air Force Base, Colo.

The detachment was activated June 18, 1986, as Detachment 1, 1st Space Wing, and became operational Jan. 15, 1987. On Feb. 1, 1990, the unit was reassigned to the newly activated 18th SURS at Peterson AFB, Colo.

Air Force members assigned to the detachment have the primary responsibility of ensuring contractor compliance with the GEODSS contract. The contractor's responsibilities include operations, maintenance and support of equipment and systems directly supporting the detachment's mission.

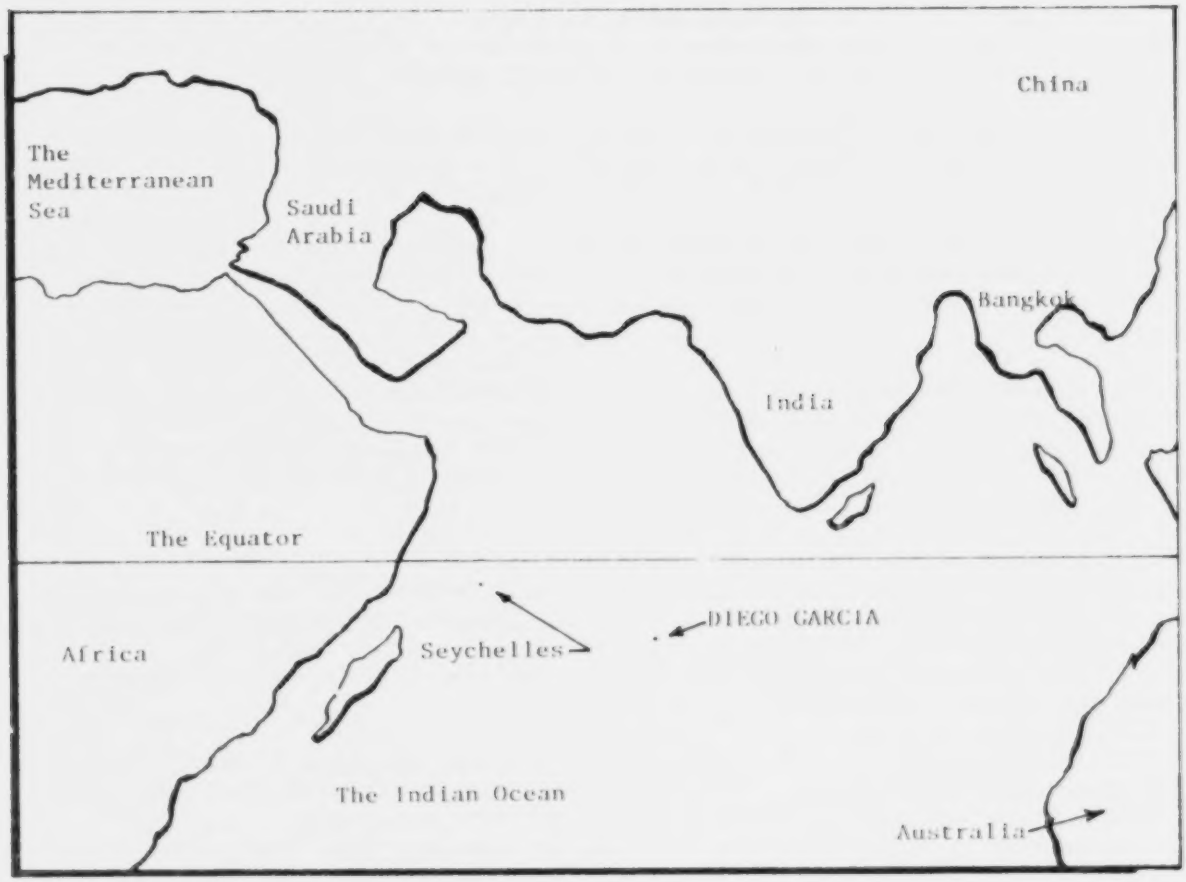
Detachment 4 is the fourth in a series of five GEODSS sites planned for Air Force Space Command. Construction of the physical plant was completed in July 1986. Installation and operational checks of the equipment and systems were completed in November 1986. Air Force Space Command accepted the site from Air Force Systems Command in December 1986.

The GEODSS site at Diego Garcia is unique among all other GEODSS sites in a number of ways. First, it has three 40-inch aperture main telescopes instead of two mains and a 15-inch auxiliary. Secondly, all telescopes at Diego Garcia are sealed against the environment and each observatory dome has a forced air system to keep out the salt laden air of the Indian Ocean. Lastly, Site 4 (as the GEODSS site at Diego Garcia is often called) is the only site south of the equator.

Location: Diego Garcia is situated near the center of the Indian Ocean between Africa and the Indonesian Archipelago. The island is remote, with the nearest commercial port being Colombo, Sri Lanka, some 960 nautical miles away. Diego Garcia is classified as a coral atoll and is among a number of islands forming a cluster known as the

Chagos Archipelago. Diego Garcia is part of the British Indian Ocean Territories and is administered by the British Government.

Transportation: SATO books flights either to Clark AB in the Philippines, or to Norfolk, Va., a take off point for Military Airlift Command's Atlantic route. MAC flights into Diego Garcia from Clark AB average one a day, with a minimum of five per week. The flying time from Clark AB to Diego Garcia is approximately eight hours by C-141 Starlifter.



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Detachment 5, 18th Surveillance Squadron
Saipan, Commonwealth of the Northern Marianas Islands

Detachment 5, 18th Surveillance Squadron, is the newest unit of the 1st Space Wing and Air Force Space Command.

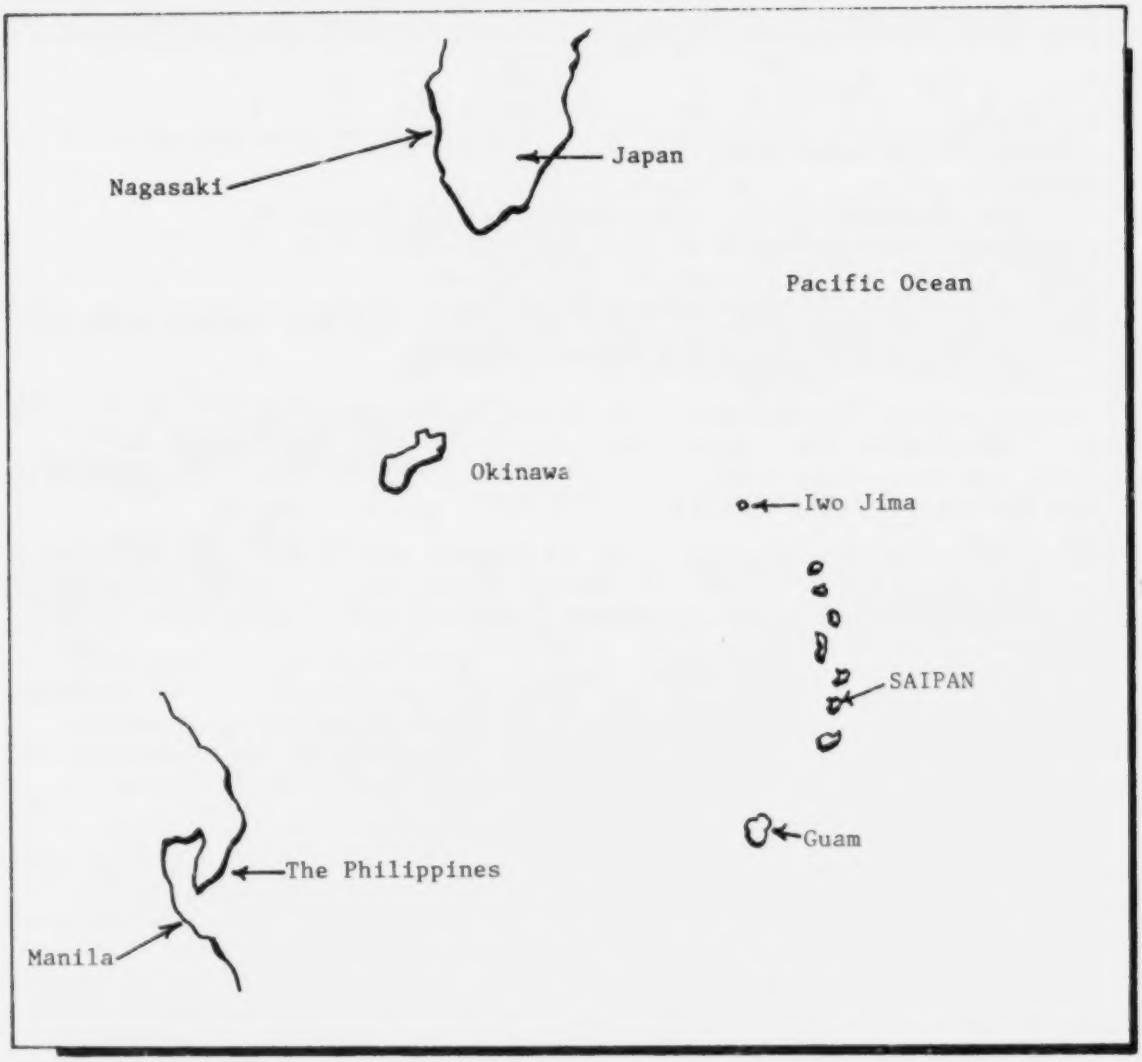
A space surveillance unit, the detachment operates a C-Band radar capable of searching for, acquiring, tracking and collecting both positional and signature data on near-Earth satellites. The system fills the Western Pacific surveillance gap.

The mission of Detachment 5 is to detect and track new foreign launches and space objects in low Earth orbit and transmit the results to the U.S. Space Command at Cheyenne Mountain Air Force Base, Colo.

The detachment was activated Feb. 1, 1990. Air Force members assigned to the detachment have the primary responsibility of ensuring contractor compliance with the operations and maintenance contract. The contractor's responsibilities include operations, maintenance and support of all equipment and systems directly involved with the detachment's mission.

The system consists of a 30-foot parabolic dish antenna and its central subsystem, radio frequency components, data processing hardware and software, communication equipment, a boresight tower, environmental equipment, and operations and support facilities. The radar was removed from the USNS Arnold, an Advanced Range Instrumentation Ship, and was refurbished by the Eastern Space and Missile Center. The Western Space and Missile Center is responsible for site facilities, communication and initial operations and maintenance. Host-tenant support is provided by Andersen AFB Guam.

Transportation: SATO books Military Airlift Command military and charter flights to Saipan via Andersen AFB. (see map on next page).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16th Surveillance Squadron
Shemya Air Force Base, Alaska

The 16th Surveillance Squadron is assigned to 1st Space Wing of Air Force Space Command. The squadron conducts surveillance missions on foreign missile launches and supports the U.S. Air Force Space Surveillance Network.

The 16th SURS operates the AN/FPS-108 radar known as the "COBRA DANE," which emits up to 15 megawatts of energy. There are approximately 30 Air Force members and 35 contract workers at the site. In addition to the mission of information gathering on foreign launches of intercontinental and sea-launched ballistic missiles, the squadron serves as an early warning defense base for detection of ICBM and SLBM attack against the continental United States and southern Canada. In the event of such an attack, the squadron can rapidly report to the North American Aerospace Defense Command at Cheyenne Mountain AFB.

An additional mission for the squadron is space surveillance. This includes data collection, orbital tracking and object identification of foreign and domestic objects in space that are destined for, or already in, Earth orbit.

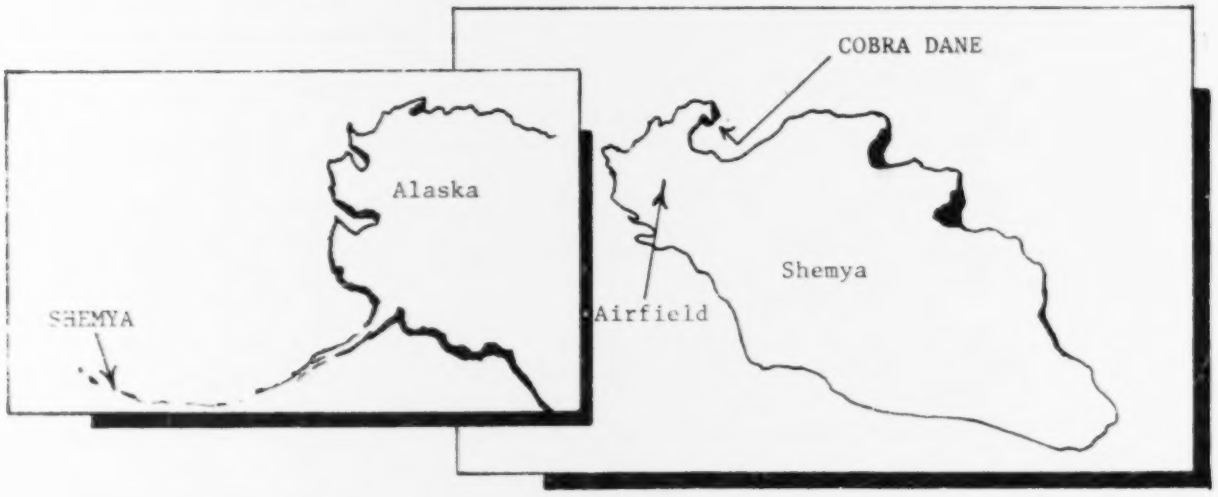
In 1954, the General Electric Company conducted a study of the problems of defense against intercontinental ballistic missiles. The result was the design of a new long-range detection radar, which was completed in 1956. The same radar system was installed at Shemya AFB in the spring of 1959, and became operational in May 1960. The squadron was activated as Detachment 2, 9th Aerospace Division in 1962 and was redesignated the 16th SURS in 1967.

The current radar system, designed by the Raytheon Corporation, was created in 1973, and the COBRA DANE radar became operational at Shemya AFB in August 1977. The 16th SURS was assigned to Strategic Air Command in 1979 and became part of 1st Space Wing in May 1983. The COBRA DANE facility is a prominent blue, six-story building located on the northwest tip of Shemya Island, and is called "America's Eye in the West."

Operationally, the 16th SURS reports directly to the United States Space Command at Cheyenne Mountain AFB, Colo., and the U.S. Air Force Foreign Technology Division at Wright-Patterson AFB, Ohio. Administratively the squadron reports to the 1st Space Wing.

Location: Shemya is an island that lies near the western end of the Aleutian Islands which extend into the Bering Sea and Pacific Ocean from the Alaskan mainland. The largest of the Semichi Islands, Shemya measures 4.5 miles long by 2.3 miles at its widest point. The island rises from its southern, sea-level beach, to a height of 240 ft. on the northern side where steep cliffs drop to a rocky shoreline.

Transportation: SATO books travelers on commercial flights to Anchorage, Alaska. At Anchorage Airport taxicab service to Elmendorf AFB is available. Elmendorf's Traffic Management Office arranges Military Airlift Command flights directly to Shemya's airfield.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

19th Surveillance Squadron
Pirinclik Installation, Turkey

The 19th Surveillance Squadron is 12 miles southwest of the city of Diyarbakir, Turkey. The unit is collocated with the 7022nd Air Base Squadron which provides support.

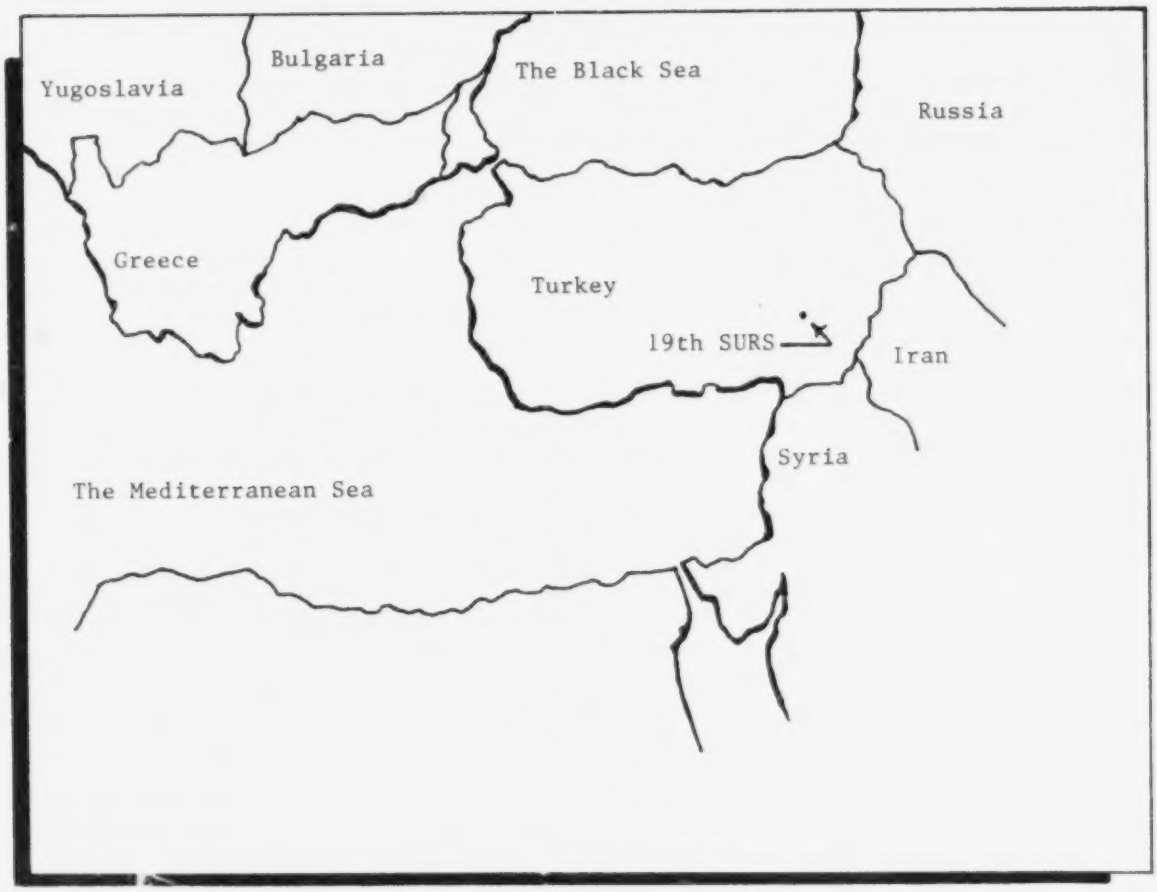
The mission of the unit is to manage and operate the AN/FPS-17 and AN/FPS-79 radars to collect data on space events and to obtain information in support of the United Nations Registry of Space Objects.

Today, there are 16 military and approximately 85 civilian contractors assigned to the 19th SURS. The unit has a joint operations program with the Turkish air force, which has trained several officers and noncommissioned officers to work in operational jobs at the site.

The 19th SURS is in an arid, semi-desert region with hot, dry summers; mild, wet autumns, and cold winters. Temperature extremes are from minus 10 degrees (f.) in winter to 130 degrees (f.) in summer.

Location: Pirinclik is southwest of the city of Diyarbakir, a transportation and communications center in southeast Turkey. It's situated on an arid plateau and has a climate comparable to Arizona.

Transportation: There are two ways to get to Diyarbakir: Military Airlift Command airlift, and category "Z" commercial travel. If traveling via MAC aircraft, routing will be from McGuire AFB, N.J. to Rhein Mein AB, Germany where travelers normally spend the night. The trip's second leg is from Rhein Mein AB to Incirlik AB, Turkey. At Incirlik, travelers make flight reservations to Pirinclik (Diyarbakir). MAC flys to Pirinclik each Tuesday, Thursday & Friday. Commercial bus service is also available, but it's a 10-hour ride. The other option, category "Z" (commercial air), is authorized in AFM 75-8, Vol 1, Atch 1. SATO books flights to Diyarbakir with stops at Kennedy International in New York; Instanbul, Turkey; and Ankara, Turkey.


Yugoslavia
Bulgaria
The Black Sea
Russia
Greece
Turkey
19th SURS
Iran
Syria
The Mediterranean Sea

United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

20th Surveillance Squadron
Eglin Air Force Base, Florida

The 20th Surveillance Squadron is assigned to the 1st Space Wing of Air Force Space Command.

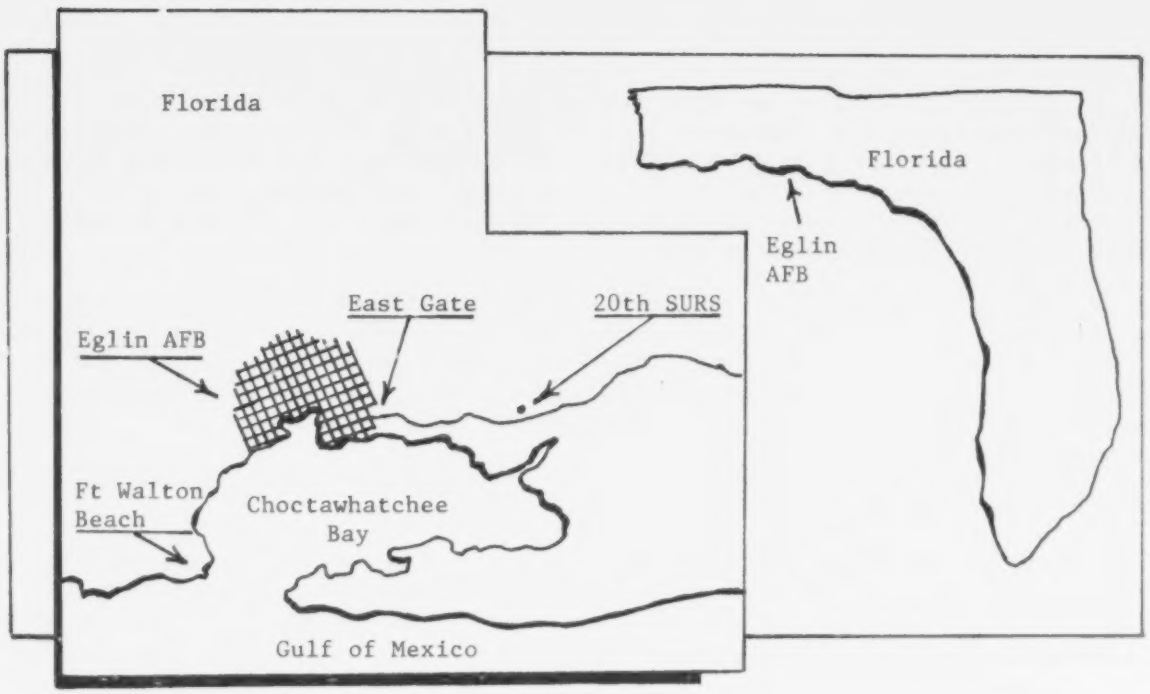
The 20th SURS operates and maintains the AN/FPS-85 Phased Array Radar. Originally designed as the prototype for phased array radars and built specifically for satellite detection and tracking, the FPS-85 tracks approximately 80 percent of all Earth satellite vehicles. It has become known as "the workhorse" of the U.S. Air Force Space Surveillance Network.

All Spacetrack and space object identification information gathered by the 20th SURS is sent to the North American Aerospace Defense Command at Cheyenne Mountain AFB, Colo., and to the Naval Space Surveillance Center in Dahlgren, Va. The FPS-85 has been tracking space objects since September 1968.

The unit was renamed from the 20th Missile Warning Squadron to the 20th SURS on June 5, 1987.

Location: The 20th SURS in on the Eglin AFB Federal Reservation which rests on the Gulf of Mexico in Florida's Northwest Panhandle. A tenant organization, 20th SURS is some 30 miles east of the main portion of Eglin AFB which is referred to by locals as "Eglin Main."

Transportation: SATO books flights to Okaloosa County Airport which shares the Eglin AFB runways. Rental cars and taxicabs are available at the airport. To reach 20th SURS, depart Eglin's east gate and drive through the towns of Valparaiso and Niceville. From Niceville, take Highway 20 east toward Freeport, passing through the communities of Seminole, Choctaw Beach, and Basin Bayou. When you reach the town of Portland, you will see signs directing you to the site.


Florida
Florida
Eglin
AFB
East Gate
20th SURS
Eglin AFB
Ft Walton
Beach
Choctawhatchee
Bay
Gulf of Mexico

United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

4th Satellite Communications Squadron (MOBILE)
Holloman Air Force Base, New Mexico

The 4th Satellite Communications Squadron (Mobile), is responsible for the management, maintenance and operation of mobile satellite communications equipment. The data received and processed by the 4th SCS is forwarded to agencies such as the National Military Command System; United States Space Command at Cheyenne Mountain AFB, Colo.; and Strategic Air Command at Offutt AFB, Neb., through the Defense Satellite Communications System.

The 4th SCS was activated Oct. 1, 1983, as the 1025th Satellite Communications Squadron (Mobile). The unit spent its first three years testing the new mobile satellite communications equipment and training members.

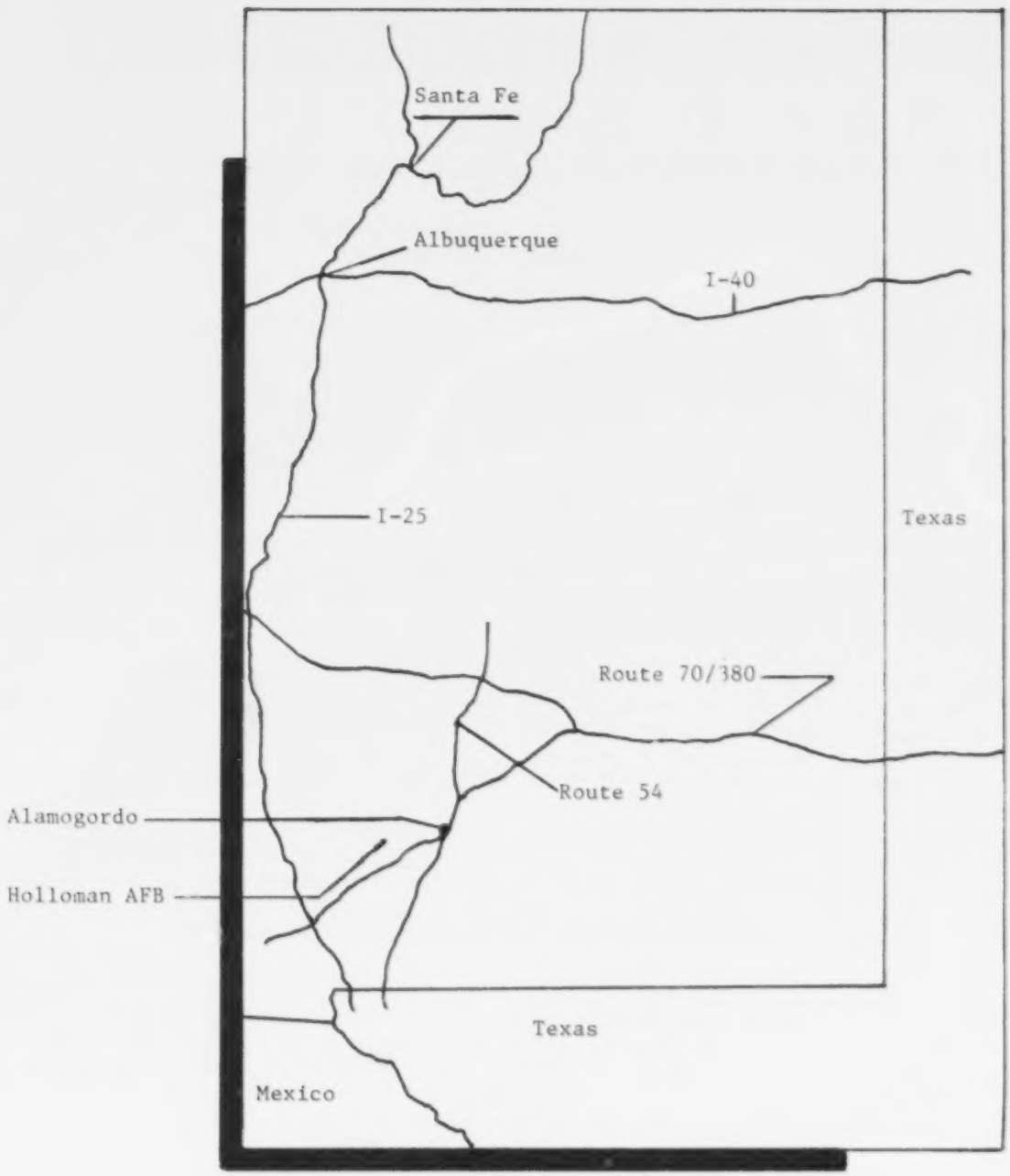
On November 1, 1985, administrative responsibility for unit operations was transferred to 1st Space Wing of Air Force Space Command. The 1025th SCS was redesignated as the 4th SCS on Aug. 1, 1986. Throughout the development and testing phase, the unit was administered by the Plans Directorate of Air Force Space Command.

The 833rd Air Division of Tactical Air Command is the host unit at Holloman AFB, N.M. The 833rd AD provides the 4th SCS with security personnel for their mobile operations. All others supporting the mobile operations are assigned to the 4th SCS. The unit has approximately 250 military members and is supported by IBM.

Location: Holloman AFB is in New Mexico's high country, nestled in the Tularosa Basin between the Sacramento and San Andreas mountain ranges. The semi-desert area immediately surrounding Holloman AFB has a low snowfall average during winter; however, mountains with snow and skiing are a 25-minute drive away. The base is in the extreme southern part of New Mexico, some 30 miles from Mexico.

Transportation: The civilian airport closest to Holloman AFB is in the city of Alamogordo, about 15 miles from the base. Most types of ground transportation is available in the terminal. Military transportation may be obtained by phoning the Holloman AFB Motor Pool at 497-7261.

THE STATE OF NEW MEXICO



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

5th Defense Space Communications Squadron
Woomera, South Australia

The 5th Defense Space Communications Squadron is the host unit for the Joint Defense Space Communications Station near the village of Woomera in the Australian State of South Australia.

The 5th DSCS is responsible for equipping, administrating and training personnel who operate the JDSCS. The JDSCS is a joint American-Australian venture for the purpose of operating and maintaining satellite interstation and intrastation support and communications equipment. Approximately 160 military members and 150 civilian employees work at the 5th DSCS.

The history of the 5th DSCS began in July, 1949. It was activated at Mountain Home Air Force Base, Idaho, and assigned to the 5th Air Base Group. The unit moved to Fairfield-Suisun AFB, Calif., which is now Travis AFB, on Nov. 12, 1949 and became the 5th Communications Squadron on March 16, 1950.

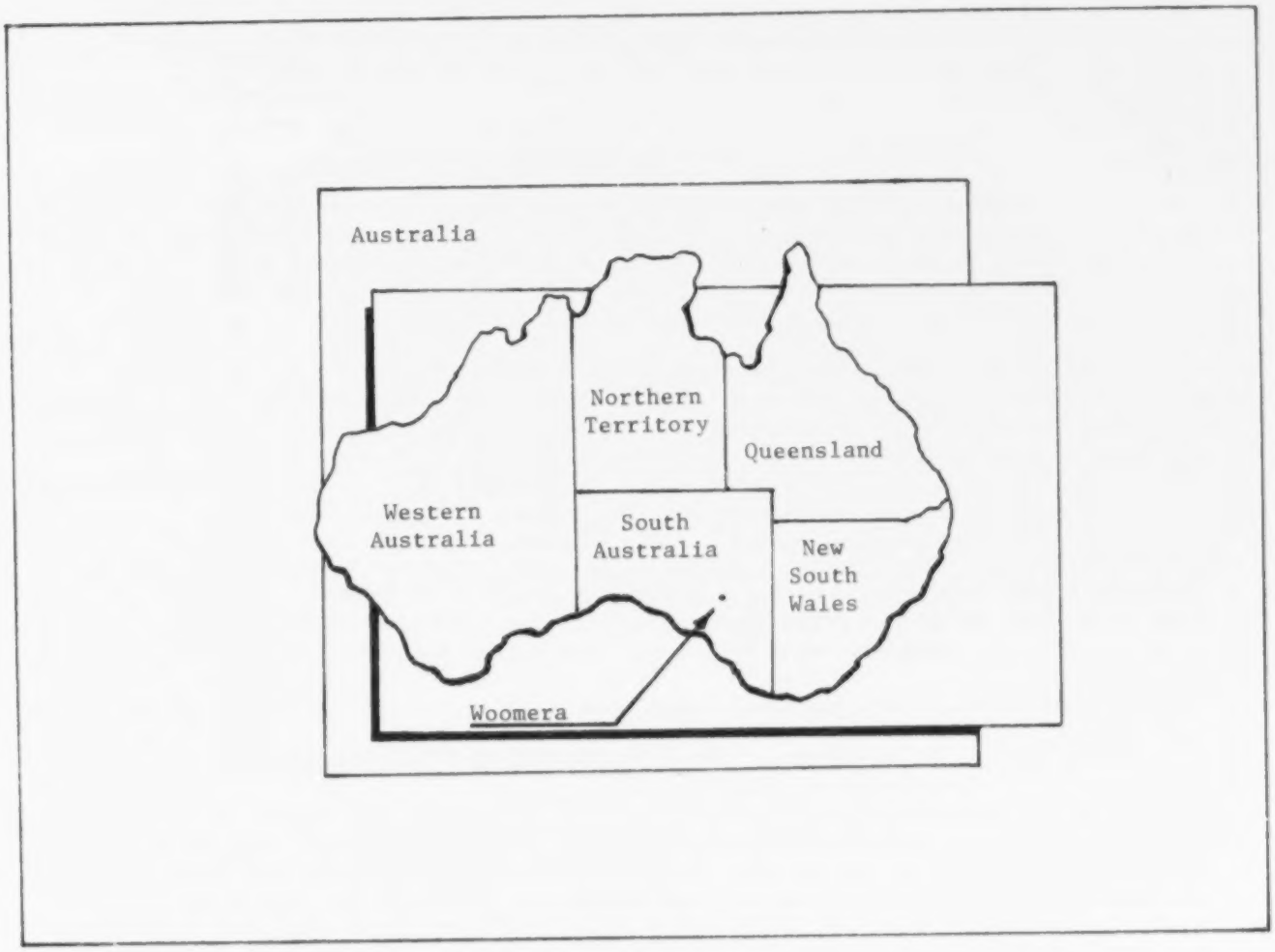
The unit was deactivated Feb. 10, 1951. A year later, it was reactivated at Travis AFB and assigned to the 5th Strategic Reconnaissance Wing. Four months later, on June 16, 1952, the unit was again deactivated.

After remaining inactive for 18 years, the squadron was reactivated and designated the 5th Defense Space Communications Squadron on April 9, 1970. On July 1, 1970 the unit was assigned to Woomera under the control of Aerospace Defense Command. On Dec. 1, 1979 the 5th DSCS was reassigned to the 1st Aerospace Division, Strategic Air Command, without a change in mission or location.

On March 1, 1983 the unit was assigned to the 1st Space Wing of Air Force Space Command. It was one of the first units assigned to Air Force Space Command when it was formed.

Location: Woomera is in the Australian outback, 115 miles northwest of Port Augusta (population 24,000) and 300 miles from Adelaide (pop: 960,000). The area is in the State of South Australia and has a climate similar to Arizona or New Mexico. Woomera is not a military base, it's a village controlled by the government of Australia through an area administrator who is responsible to the Australian Department of Defense.

Transportation: SATO books trans-pacific flights aboard either United Airlines or Continental Airlines departing from Los Angeles International and arriving first either at Sidney or Melbourne. The flight takes about 18 hours with enroute stops. From Sidney or Melbourne the flight will continue to Adelaide (flight time is about two hours). Adelaide is the capital city of the State of South Australia. From Adelaide Woomera can be reached by road, rail, or air. The road from Adelaide to Woomera is paved and the trip normally takes six hours by car. Kendall Airlines provides service between Woomera and Adelaide six days a week and tickets can be purchased at the Adelaide Airport. Kendall's airplanes are small (16 seats) and baggage is limited to 66 pounds per passenger. Flight time is one-and-a-half hours. Commercial buses also pass Woomera with one bus a day passing the village in each direction. The bus trip between Adelaide and Woomera takes about seven hours. There is also daily train service from Adelaide to Pimba, five miles south of Woomera. This trip takes nine hours, seats are limited, and reservations must be at least one day in advance. Tickets cannot be purchased on weekends.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

6th Missile Warning Squadron
Cape Cod Air Force Station, Massachusetts

The 6th Missile Warning Squadron is atop Cape Cod's Flatrock Hill. The station is home to one of four PAVE PAWS radar sites in the United States.

PAVE is an Air Force program name while PAWS stands for Phased Array Warning System.

The primary purpose of PAVE PAWS is to detect a sea-launched ballistic missile attack, determine the potential numbers and probable destination of missiles, then report this information to the North American Aerospace Defense Command, Cheyenne Mountain AFB, Colo.; Strategic Air Command, Offutt AFB, Neb.; and the National Command Authorities. Additionally, PAVE PAWS provides information on the location and velocity of Earth-orbiting satellites to the U.S. Space Command, and the Space Surveillance Center at Cheyenne Mountain AFB.

The main difference between PAVE PAWS and conventional radar is that PAVE PAWS is steered electronically. The phased array radar incorporates nearly 3,600 small, active antenna elements coordinated by two computers. One computer is on-line at all times and the second computer will automatically take control if the first fails. The computers feed energy to the antenna units in precise, controlled patterns, allowing the radar to detect objects at very high speeds since there are no mechanical parts to limit the speed of the radar sweep. The PAVE PAWS radar can electronically change its point of focus in milliseconds, while conventional dish-shaped radar may take up to a minute to mechanically swing from one area to another.

The PAVE PAWS main building is shaped roughly like a pyramid with a triangular base 105 feet on each side. The two radiating faces, each containing approximately 1,800 active antenna elements, are tilted back 20 degrees from the vertical. PAVE PAWS radar beams reach outward for approximately 3,000 nautical miles in a 240-degree sweep. At this extreme range, it can detect an object the size of a small automobile. Smaller objects can be detected at closer range.

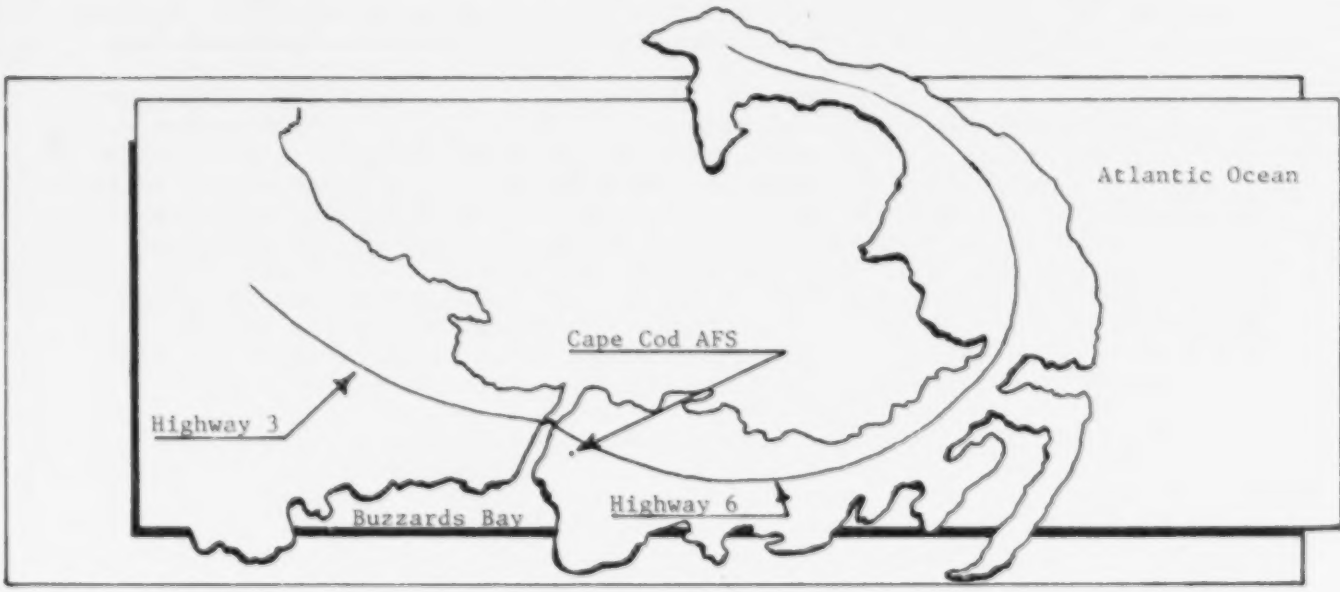
The 6th MWS was activated on Oct. 1, 1978, as an Air Force Headquarters controlled unit, with operational control vested in the commander-in-chief of the North American Aerospace Defense Command and Aerospace Defense Command.

On Oct. 1, 1979, the unit was assigned to ADCOM headquarters for administrative purposes. During this period, the communications and electronics maintenance functions were transferred to Air Force Communications Command. On Dec. 1, 1979, the 6th MWS was assigned to Strategic Air Command for administrative aspects of manning, equipping and training. Finally, on May 1, 1983, the 6th MWS was transferred to the 1st Space Wing of Air Force Space Command.

The area of the 6th MWS occupies some 20,000 acres of what was once Otis AFB, and is now the Massachusetts Military Reservation. The 6th MWS receives host-tenant support from Hanscom AFB, Mass.; Pease AFB, N.H.; a fighter-interceptor wing at Otis Air National Guard Base; and from the U.S. Coast Guard Station on Cape Cod.

The sophisticated solid state radar system was developed by Air Force Systems Command's Electronic Systems Division, Hanscom AFB, Mass. The operations and maintenance contractor is Base Services Incorporated.

Transportation: SATO books flights to Boston, Mass. Travelers who rent cars at Boston Airport should drive east on the Massachusetts Turnpike (I-90). Take Route 128 south to Route 3 south. The name of Route 3 changes to Route 6 at the Sagamore Bridge which crosses Cape Cod Canal. Take exit #1 off Route 6. Take the first left after the road becomes two-way. This is the access road to the site.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

7th Missile Warning Squadron
Beale Air Force Base, California

The 7th Missile Warning Squadron, Beale Air Force Base, Calif., operates and maintains the AN/FPS-123 radar, known as PAVE PAWS. PAVE is an Air Force program name, while PAWS stands for Phased Array Warning System. The squadron is one of four PAVE PAWS units in the continental United States.

The 7th MWS is under the command of the 1st Space Wing which is part of Air Force Space Command. Both the 1SWG and AFSPACECOM have headquarters at Peterson Air Force Base, Colo.

The main difference between PAVE PAWS and conventional radar is that PAVE PAWS is steered electronically. The phased array radar incorporates nearly 3,600 small, active antenna elements coordinated by two computers. One computer is on-line at all times and the second computer will automatically take control if the first fails. The computers feed energy to the antenna units in precise, controlled patterns, allowing the radar to detect objects at very high speeds since there are no mechanical parts to limit the speed of the radar sweep. The PAVE PAWS radar can electronically change its point of focus in milliseconds, while conventional dish-shaped radar may take up to a minute to mechanically swing from one area to another.

The PAVE PAWS main building is shaped roughly like a pyramid with a triangular base 105 feet on each side. The two radiating faces, each containing approximately 1,800 active antenna elements, are tilted back 20 degrees from the vertical. PAVE PAWS radar beams reach outward for approximately 3,000 nautical miles in a 240-degree sweep. At this extreme range, it can detect an object the size of a small automobile. Smaller objects can be detected at closer range.

The phased array system provides tactical warning and attack assessment of a sea-launched ballistic missile attack against the continental United States and southern Canada. Other missions include providing warning and assessment of intercontinental ballistic missile attacks and support of the Air Force Spacetrack system by providing data on more than 7,000 objects now in Earth orbit.

Construction of the PAVE PAWS site at Beale Air Force Base was

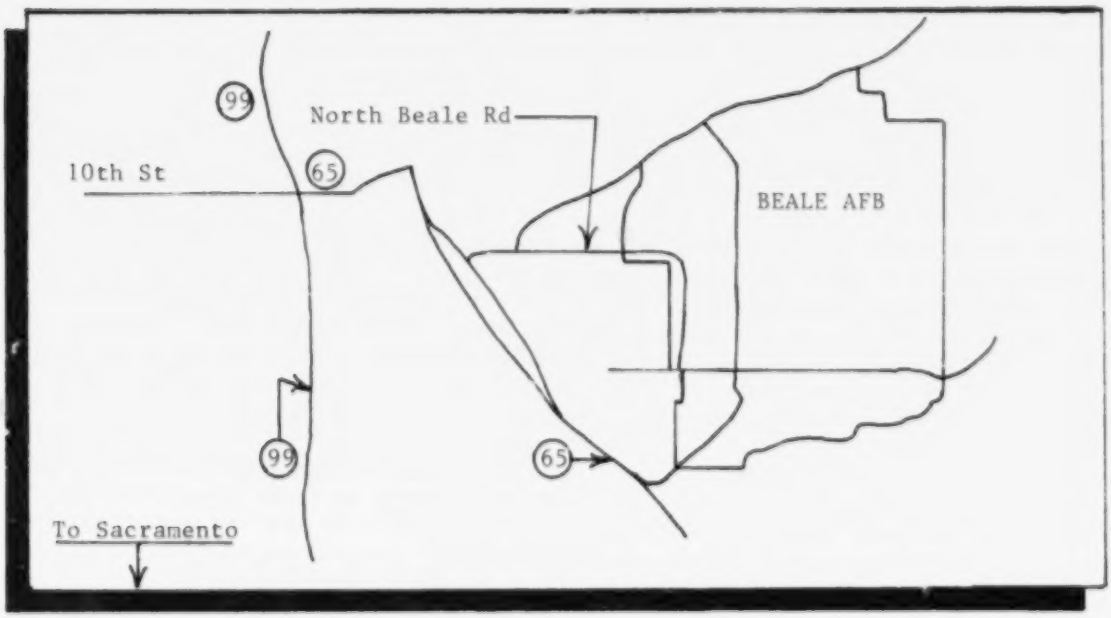
completed in October 1979, and achieved initial operational capability Aug. 15, 1980. It was originally part of the 26th Aerospace Division of Aerospace Defense Command. On Dec. 1, 1979, it became part of Strategic Air Command, reporting to the 14th Air Division. It transferred to Air Force Space Command on May 1, 1983.

The closest cities to Beale Air Force Base are Marysville and Yuba City, Calif., which are about 10 miles to the west of the base and have a combined population of nearly 50,000. Located 40 miles south is the state capital, Sacramento, in the heart of the 1849 California gold rush area.

Beale Air Force Base takes its name from General Edward Fitzgerald Beale, who is remembered as the founder of the U.S. Camel Corps and one of the largest landowners in California. The base opened in 1942, and covers some 86,000 acres.

Location: The site is on Beale AFB, 40 miles north of Sacramento.

Transportation: From Sacramento Metropolitan Airport drive south on Interstate 5 to State Highway 99. Take Highway 99 north toward Marysville. Turn east on 10th St (Highway 65). Highway 65 will curve southeast. Make a left turn on North Beale Road which goes directly to Beale's main gate.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

8th Missile Warning Squadron
Eldorado Air Force Station, Texas

The 8th Missile Warning Squadron is one of the newest units assigned to the 1st Space Wing of Air Force Space Command.

The 8th MWS was activated by Air Force Space Command April 1, 1986 and became operational on May 8, 1987. Construction of the radar was completed ahead of schedule and below budget.

The 8th MWS operates the phased array warning system detection radar, commonly called PAVE PAWS. PAVE is an Air Force program name, while PAWS stands for Phased Array Warning System.

The main difference between PAVE PAWS and conventional radar is that PAVE PAWS is steered electronically. The phased array radar incorporates nearly 3,600 small, active antenna elements coordinated by two computers. One computer is on-line at all times and the second computer will automatically take control if the first fails. The computers feed energy to the antenna units in precise, controlled patterns, allowing the radar to detect objects at very high speeds since there are no mechanical parts to limit the speed of the radar sweep.

The PAVE PAWS radar can electronically change its point of focus in milliseconds, while conventional dish-shaped radar may take up to a minute to mechanically swing from one area to another.

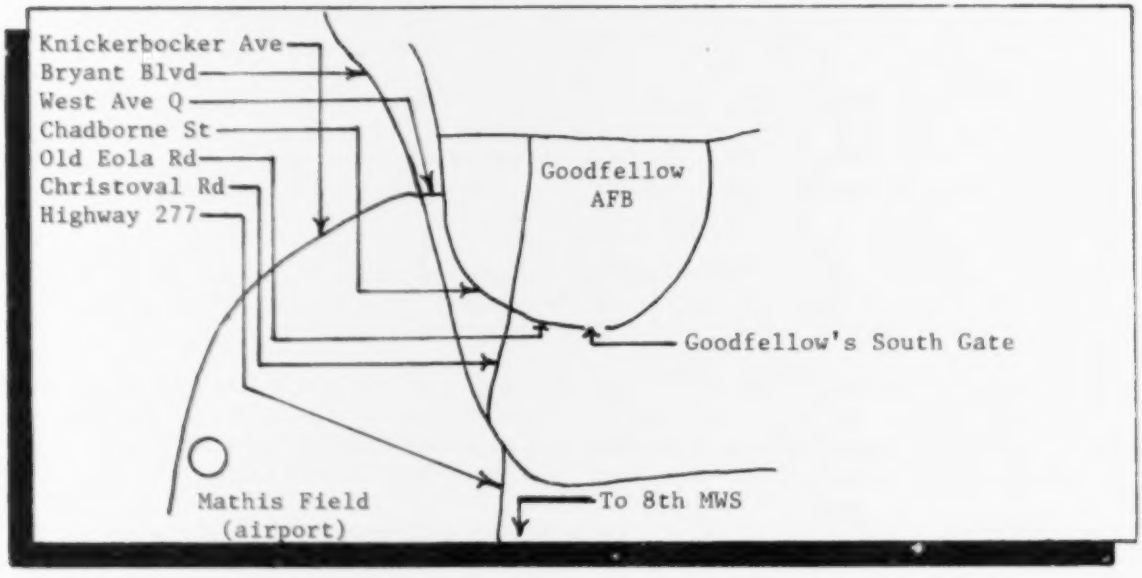
The PAVE PAWS main building is shaped roughly like a pyramid with a triangular base 105 feet on each side. The two radiating faces, each containing approximately 1,800 active antenna elements, are tilted back 20 degrees from the vertical. PAVE PAWS radar beams reach outward for approximately 3,000 nautical miles in a 240-degree sweep. At this extreme range, it can detect an object the size of a small automobile. Smaller objects can be detected at closer range.

The primary mission of the 8th MWS is to provide warning and attack assessment of a sea-launched ballistic missile and intercontinental missile attack against the continental United States and southern Canada. This warning data is transmitted to the North American Aerospace Defense Command at Cheyenne Mountain AFB, Colo.; Strategic Air Command Headquarters in Omaha, Neb.; and the National Command Authorities in Washington, D.C.

The radar is operated 24-hours-a-day by 200 military personnel, Department of Defense civilian employees, and contractor employees.

Location: Located near the farm range town of Eldorado, Texas, the 8th MWS site is approximately 35 miles south of San Angelo and 250 miles southwest of Dallas. The closest operational base to the site is Goodfellow Air Force Base in San Angelo.

Transportation: SATO books air transportation to Mathis Field, San Angelo's airport. When leaving the airport drive north on Knickerbocker Rd. Bryant Blvd will cross Knickerbocker Rd after some five miles. Stay on Knickerbocker Rd and cross Bryant Blvd. After crossing Bryant Blvd, Knickerbocker Rd becomes West Ave Q. Drive five blocks and turn right on Chadborne St. Chadborne St goes directly to Goodfellow's south gate. To get to the 8th MWS from Goodfellow, leave the base's south gate and turn right on Old Eola Rd. Drive west, then turn left on Christoval Rd. You'll be driving south. Then take Highway 277 south. The site is about a 40 mile drive due south on Highway 277.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

9th Missile Warning Squadron
Robins Air Force Base, Georgia

The 9th Missile Warning Squadron operates the phased array warning system detection radar, commonly called PAVE PAWS. The 9th MWS has been operational since November 1986 and is often called "PAVE PAWS Southeast."

PAVE is an Air Force program name and PAWS stands for Phased Array Warning System.

The squadron is assigned to the 1st Space Wing of Air Force Space Command. The 1st Space Wing and Air Force Space Command have their headquarters at Peterson AFB, Colo.

The primary mission of the 9th MWS is to provide attack warning and assessment of a sea-launched ballistic missile attack on the United States and southern Canada. Warning data is transmitted to the North American Aerospace Defense Command, Cheyenne Mountain AFB, Colo.; Strategic Air Command, Offutt AFB, Neb.; and the National Command Authorities.

Military and civilian workers also have a secondary mission to provide similar information on an intercontinental ballistic missile attack. PAVE PAWS also supports the U.S. Air Force Space Surveillance Network with Earth satellite vehicle surveillance, tracking, and radar space object identification.

The radar operates 24-hours-a-day with the missions performed by some 70 military members and 120 contractor employees.

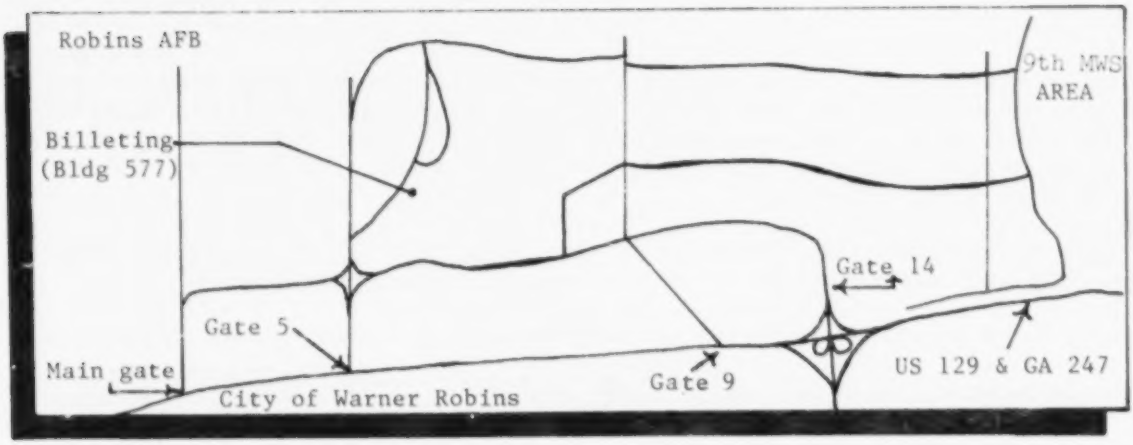
The main difference between PAVE PAWS and conventional radar is that PAVE PAWS is steered electronically. The phased array radar incorporates nearly 3,600 small, active antenna elements coordinated by two computers. One computer is on-line at all times and the second computer will automatically take control if the first fails. The computers feed energy to the antenna units in precise, controlled patterns, allowing the radar to detect objects at very high speeds since there are no mechanical parts to limit the speed of the radar sweep. The PAVE PAWS radar can electronically change its point of focus in milliseconds, while conventional dish-shaped radar may take up to a minute to mechanically swing from one area to another.

The PAVE PAWS main building is shaped roughly like a pyramid with a triangular base 105 feet on each side. The two radiating faces, each containing approximately 1,800 active antenna elements, are tilted back 20 degrees from the vertical. PAVE PAWS radar beams reach outward for approximately 3,000 nautical miles in a 240-degree sweep. At this extreme range, it can detect an object the size of a small automobile. Smaller objects can be detected at closer range.

Robins AFB is an Air Force Logistics Command base and has been in operation since September 1941. The 9th MWS site has been a part of Air Force Space Command since July 1985.

Location: The 9th MWS is in the heart of middle Georgia, approximately 100 miles south of Atlanta. The base and nearby town of Warner Robins are named in honor of Brigadier General Augustine Warner Robins.

Transportation: SATO will book air transportation to Lewis B. Wilson Airport. It's located between the cities of Macon and Warner Robins and is about five miles north of Robins AFB. Rental cars and taxicabs are available at the airport. Military transportation can be obtained by phoning the Base Transportation Office at 926-3493.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

10th Missile Warning Squadron
Cavalier Air Force Station, North Dakota

Cavalier Air Force Station, N.D., is the home of the 10th Missile Warning Squadron, a unit of the 1st Space Wing of Air Force Space Command. The 1st Space Wing and Air Force Space Command have headquarters at Peterson Air Force Base, Colo.

The 10th MWS is on the western edge of the agriculturally rich Red River Valley in northeastern North Dakota. It's approximately 85 miles north of Grand Forks AFB, the site's host base, and just 15 miles south of the Canada.

The squadron manages and operates a single-faced, phased array radar, the Perimeter Acquisition Radar Attack Characterization System, which is known locally and to the military as PARCS. The primary mission of the unit is to provide tactical warning and attack assessment of a sea-launched ballistic missile attack against the continental United States and southern Canada. The 10th MWS also has a second mission of equal weight. It would provide warning and attack assessment in the event of an intercontinental ballistic missile attack against the same areas.

The missile warning data and assessment information are forwarded to Cheyenne Mountain AFB, Colo.

As an additional mission, the 10th MWS provides surveillance, tracking, and space object identification support for the U.S. Air Force Space Surveillance Network.

The unit was originally the acquisition radar portion of the United States' only operational anti-ballistic missile system, known as SAFEGUARD. Due to the 1972 Anti-Ballistic Missile Treaty (SALT II), components of the SAFEGUARD complex, with the exception of the PARCS radar at Cavalier AFS, were deactivated in February, 1976.

The forerunner of the present day 10th MWS began passing tactical warning and attack assessment data to Cheyenne Mountain AFB, Colo., in January 1977. In December 1979, the unit was transferred from Aerospace Defense Command to Strategic Air Command.

The unit, as it exists today, joined the newly established

Air Force Space Command in 1983 as Detachment 5, 1st Space Wing. On Aug. 1, 1986, the unit was redesignated as the 10th Missile Warning Squadron, 1st Space Wing.

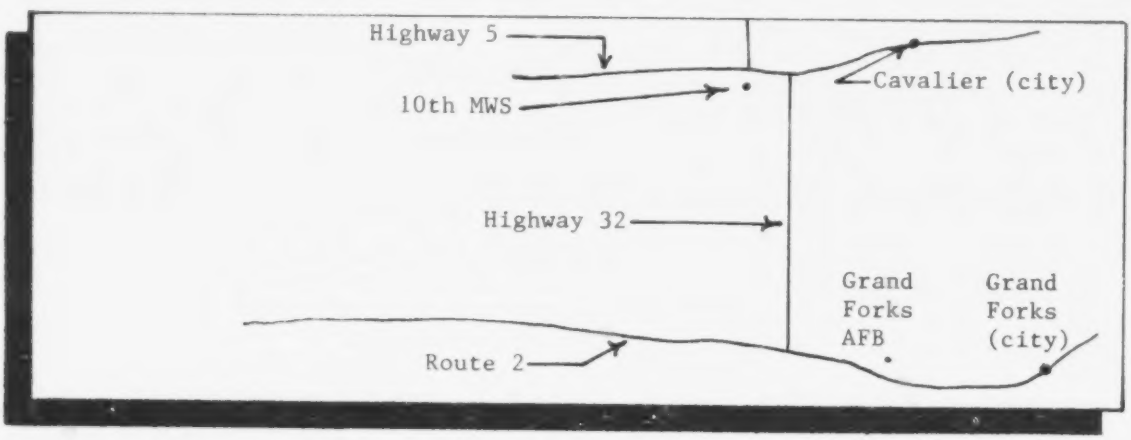
The radar is easily the most prominent building at the unit. It's a concrete structure that stands 121 feet high, making it the second tallest in North Dakota.

Additional facilities at the 10th MWS include the industrial building which houses the unit motor pool and supply areas and, in separate buildings, a fire station and gymnasium. There is also a 12-unit bachelor officer quarters and 14-unit bachelor enlisted quarters. The 10th MWS also has an on-site family housing complex of 12 three-or-four bedroom carpeted units with fenced yards and landscaping. The community center houses a hobby and activities area, base exchange, snack bar, lounge area, library, and bowling lanes.

A total of 26 military and eight civil service people are permanently assigned to the 10th MWS. Of these, 16 of the military members are assigned to the operations directorate, which is responsible for the Missile Warning Operations Center where missile warning and Spacetrack missions are performed. The remainder of the assigned military and civilian workers provide the quality assurance evaluation of various contracted functions of the unit. There are another approximately 200 contract workers at the unit who provide such services as fire protection, law enforcement, custodial care, operations, maintenance and supply.

Location: The area that surrounds the 10th MWS has flat land and rich soils that consistently produce bumper crops of sugar beets, potatoes, wheat, barley and sunflowers. In addition, the scenic Pembina Hill next to the unit is the year-round home of large numbers of whitetail mule deer, moose, wild turkeys and a small herd of elk. Hunters from throughout the midwest flock to the area's Central Flyway for goose and duck hunting, only 50 miles west of the unit. Local community support of the the 10th MWS is from the towns of Walhalla to the north and Cavalier to the east. Both towns have populations of about 1,500, and are each about 13 miles from Cavalier AFS.

Transportation: From Grand Forks the best route to Cavalier AFS is Route 2 west to Highway 32. Highway 32 north to Highway 5. Highway 5 west for two miles.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

12th Missile Warning Group
Thule Air Base, Greenland

The 12th Missile Warning Group is the host unit for Thule Air Base, Greenland, and is one of seven missile warning squadrons assigned to the 1st Space Wing of Air Force Space Command. The 1st Space Wing and Air Force Space Command have headquarters at Peterson Air Force Base, Colo. The group is part of the Ballistic Missile Early Warning System.

The 12th MWG, located approximately 700 miles north of the Arctic Circle, manages and operates the AN/FPS-120 model solid-state phased array radar, or SSPAR for short. The system became operational June 24, 1987, and replaced the old BMEWS system, which was in use for more than a quarter of a century.

The unit is responsible for providing tactical warning and attack assessment of a ballistic missile attack against the continental United States and southern Canada.

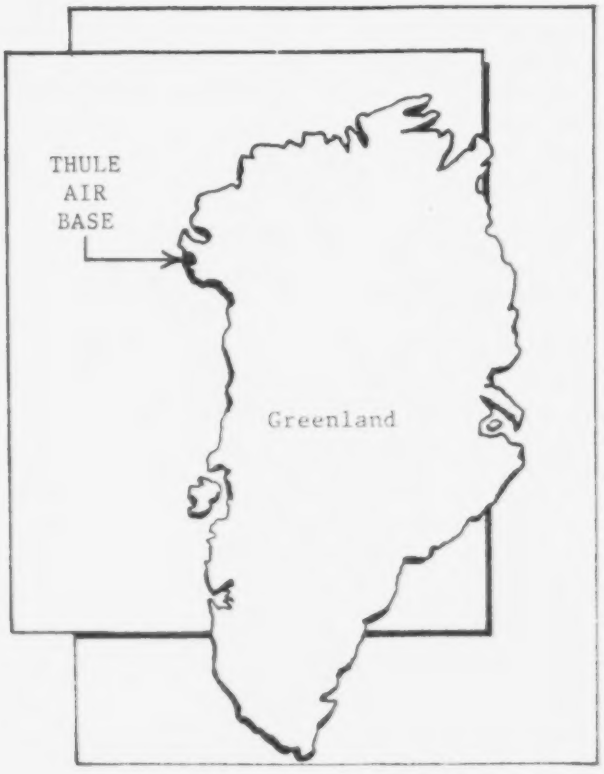
Warning data from the 12th MWG is forwarded to the North American Aerospace Defense Command, Cheyenne Mountain Air Force Base, Colo. The squadron is also responsible for a portion of the Air Force Space Command Space Surveillance Program and assists in tracking more than 7,000 space objects currently in orbit. The SSPAR radar beams can reach out for approximately 3,000 nautical miles in a 240-degree sweep, and at this extreme range can detect an object in space the size of a small automobile. The radar is capable of detecting smaller objects at closer ranges.

The 12th MWG, located at the most northern U.S. base, would also provide attack assessment and detection in the event of a sea-launched ballistic missile attack.

The 12th MWS is a vital portion of the BMEWS operation which includes the 13th MWS at Clear AFS, Alaska, and a Royal Air Force facility at Fylingdales-Moor in the United Kingdom. This U.S. military tracking facility has been in operation at Thule AB since the signing of a defense treaty between the U.S. and Danish governments in 1951. The unit was activated as a part of the Strategic Air Command in 1961 and became part of Air Force Space Command in 1983.

Location: Thule AB is on the northwest coast of Greenland, 700 miles north of the Arctic Circle and some 900 miles south of the North Pole. The name Thule is derived from the Latin "Ultime Thule," meaning northernmost part of the habitable world. The base is on the floor of an ancient glacier bed facing North Star Bay and is bordered by mountains to the north and the south. Greenland is the world's largest island with more than five-sixths of its surface covered with ice. The ice is more than 11,000 feet thick in some areas.

Transportation: Travelers get to Thule AB via Military Airlift Command aircraft that fly out of McGuire AFB, N.J. SATO books flights to Newark International Airport in Newark, N.J. From the airport, drive south on the New Jersey Turnpike. The turnpike is less than a mile from the airport and is well marked with signs. Leave the turnpike at exit #117. McGuire AFB is about three miles from the exit and directions are clearly marked. Bus and limo service from the airport to McGuire AFB is also available from Newark International.



United States Air Force

FACT SHEET

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13th Missile Warning Squadron
Clear Air Force Station, Alaska

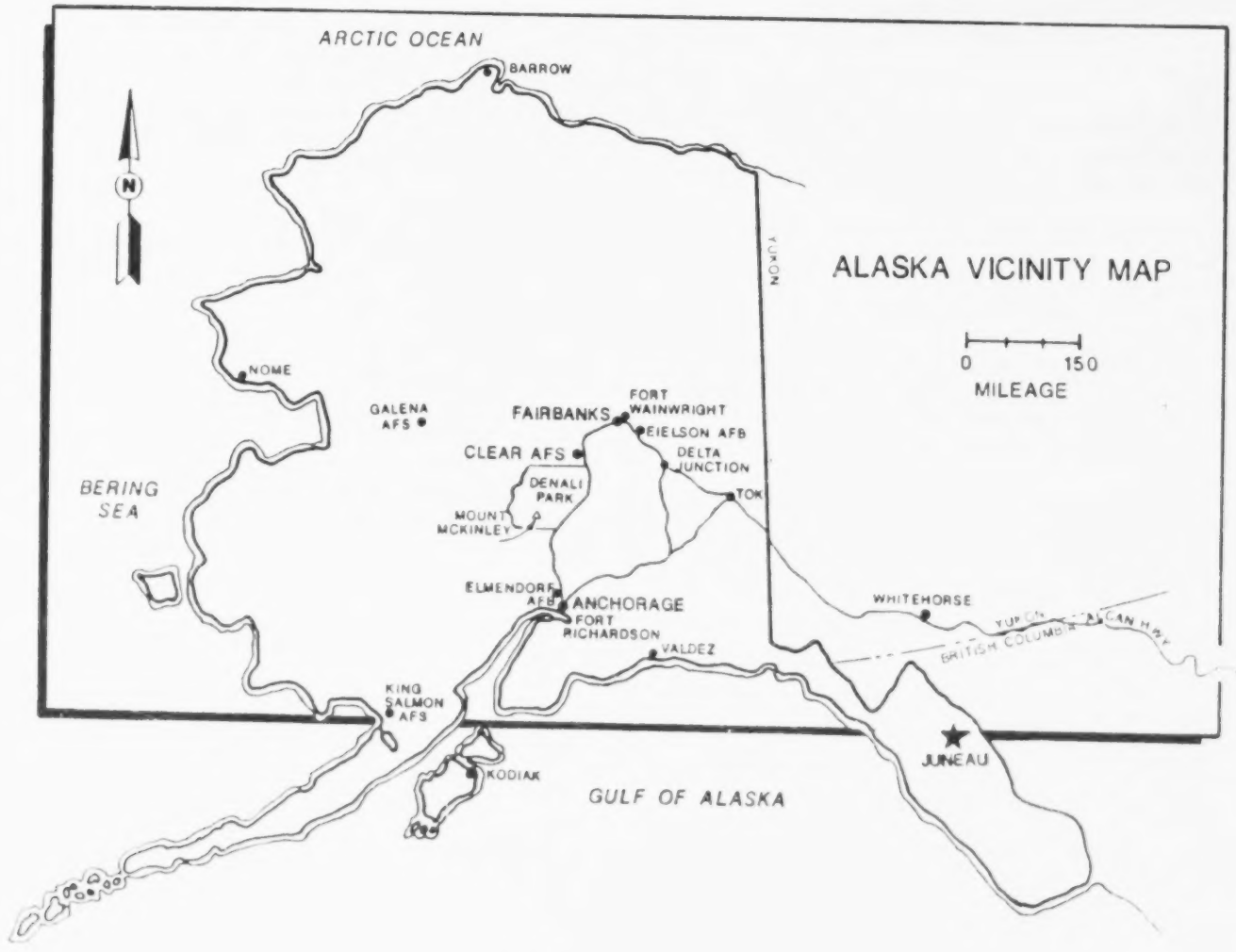
The 13th Missile Warning Squadron is one of seven missile warning squadrons assigned to the 1st Space Wing of Air Force Space Command and is part of the Ballistic Missile Early Warning System.

The 13th MWS manages and operates the AN/FPS-92 and AN/FPS-50 radar systems. The unit is responsible for providing tactical warning and attack assessment of a ballistic missile attack against the continental United States and southern Canada.

Warning data from the 13th MWS is forwarded to Cheyenne Mountain Air Force Base, Colo. The squadron is also responsible for a portion of the Air Force Space Command Space Surveillance Program and assists in tracking more than 7,000 space objects in Earth-orbit.

As part of the BMEWS system, the 13th MWS functions with the 12th Missile Warning Group at Thule Air Base, Greenland, and a Royal Air Force facility at Fylingdales-Moor in the United Kingdom.

Transportation: Clear AFS is accessible by air and highway. The local airstrip is a 4,000 ft. compacted gravel runway with a 500 ft. overrun at each end and is primarily used by local civilians. There is no scheduled airline service in or out of Clear's airstrip. The highway from Fairbanks is paved. From Fairbanks International Airport follow signs to George Parks Highway, then follow signs to Anchorage.



United States Air Force

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47th Communications Group
Cheyenne Mountain Air Force Base, Colorado

The 47th Communications Group (CG) was originally activated as the 47th Communications Squadron (CS) on Dec. 1, 1950 at Mitchell AFB, N.Y. and was assigned to the Continental Air Defense Command, known as CONAD.

The squadron was then assigned to Air Defense Command (ADC) on Jan. 1, 1951. On Jan. 8, 1951, ADC and the 47th CS moved from Mitchell AFB to Ent AFB, Colo., which is now the Olympic Training Center.

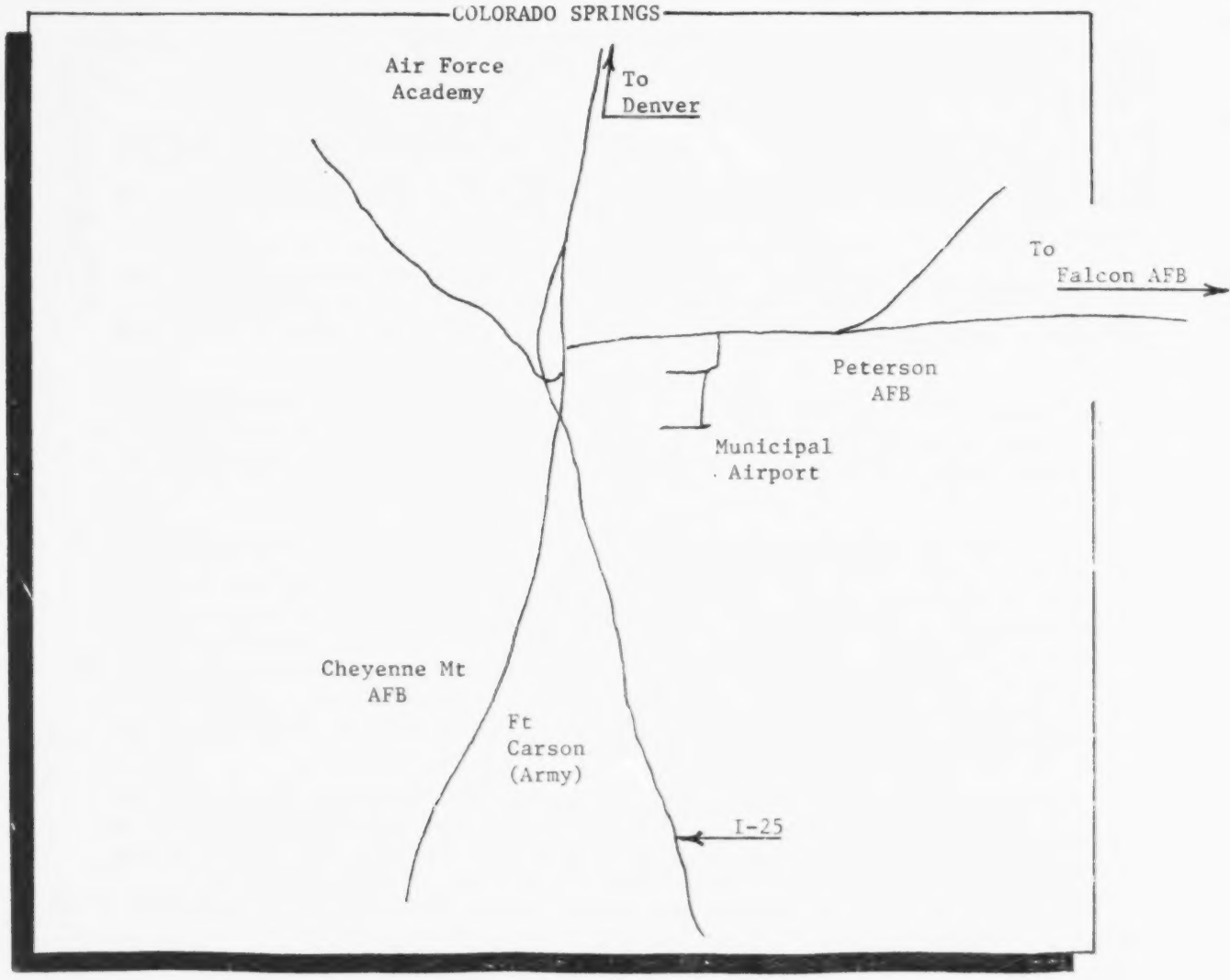
On July 1, 1966 the squadron was disbanded. It became the 47th Communications Group (CG) on May 6, 1966, with Col. Robert Kraus as its commander. The group moved to building 1038 on Peterson AFB in November, 1969.

The 47th CG was relieved from its assignment to Headquarters, ADC in April, 1976, and reassigned to the Headquarters of ADC's 46th Aerospace Defense Wing. The group was assigned to the Air Force Communications Service Oct. 1, 1979, and moved to the Cheyenne Mountain Complex. On April 1, 1983, the group was reassigned to the Space Communications Division, Air Force Communications Command (formerly Air Force Communications Service). The unit underwent another name change and became the 47th Information Systems Group, only to revert back to the 47th CG on Nov. 1, 1986.

The group is at the hub of a vital communications system. The system uses satellites, microwave routes, and buried cables. The communications system uses two microwave antennas and two coaxial cables to reach the outside world. Any one of the antennas or cables can carry the entire communications load for the Cheyenne Mountain Complex.

Most of the communications traffic is computerized data, flowing from computers at surveillance and warning installations directly to computers inside Cheyenne Mountain. There are 87 computers that feed data to operational centers within the complex. The communications and computer systems, both internal and external to Cheyenne Mountain, and the worldwide connecting sensors form the largest and

most complex command and control network in the free world. The 47th CG ensures that communications and computer systems internal to the complex are operated and maintained in the most efficient manner possible. The systems must be available and running 24 hours-a-day, 365 days a year. The group also provides all secure and nonsecure voice communications for Cheyenne Mountain.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

1001st Space Systems Squadron
Lowry Air Force Base, Colorado

The 1001st Space Systems Squadron is on Lowry Air Force Base in Denver, Colo. Since May 1, 1983, the squadron has been a part of 1st Space Wing and Air Force Space Command, both with headquarters at Peterson AFB, Colo.

The mission of the 1001st Space Systems Squadron has expanded since its establishment. As Detachment 1, 2nd Communications Squadron, the mission was to provide systems analysis, computer program development and maintenance, and contract management support for a deep space satellite system and associated communications ground stations. Coincident with assuming its present name on June 1, 1989, the 1001st Space Systems Squadron retained that mission and assumed responsibility for management of system program agencies and the software configuration management for all 1st Space Wing missile warning and space surveillance sites.

The 1001st Space Systems Squadron is located approximately three miles from Stapleton International Airport, one of the 10 busiest airports in the world, and is located in the Denver metropolitan area.

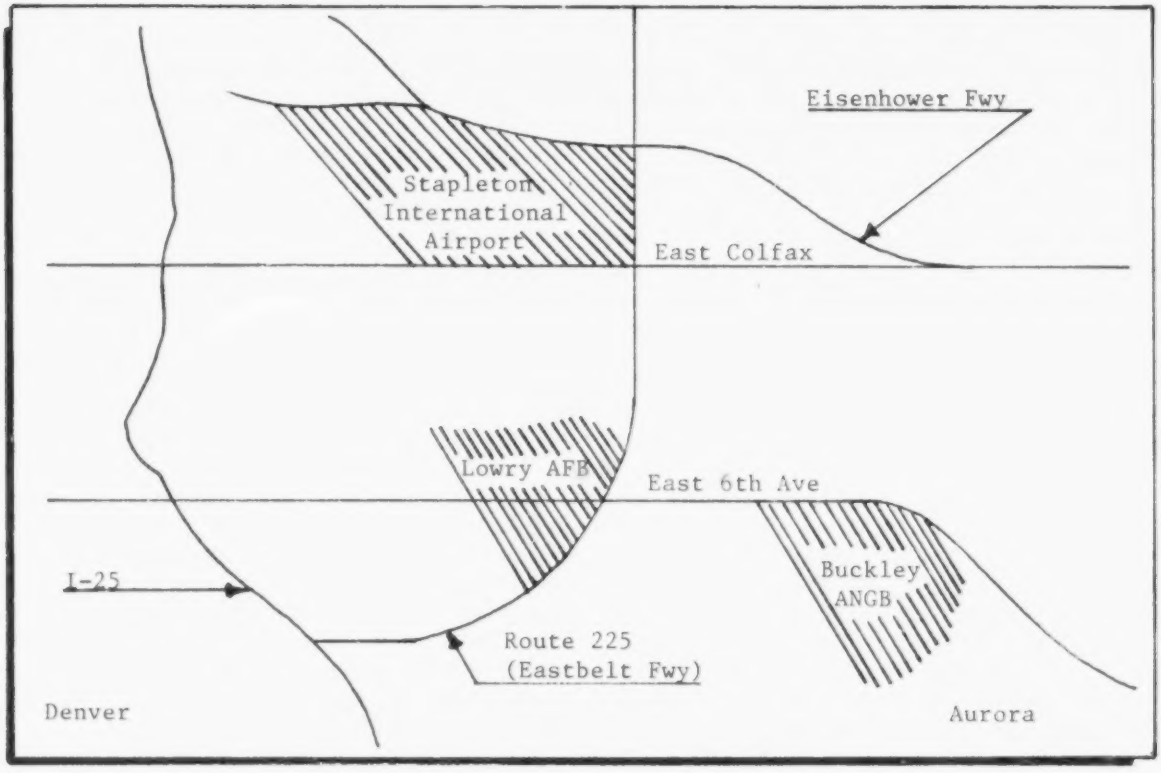
Approximately 85 military members, 12 Department of Defense civilians and 17 civilian contractors perform the mission at the 1001st Space Systems Squadron, using IBM computers, peripherals and satellite antennas. The squadron has always had a close relationship with the 2nd Communications Squadron, located in nearby Aurora, Colo., at Buckley Air National Guard Base, but now supports a number of other organizations. The 2nd Communications Squadron and the 1001st Space Systems Squadron, were collocated at Lowry Air Force Base in a former missile maintenance facility. After completion of new buildings at Buckley Air National Guard Base, most of the 2nd Communications Squadron members relocated. Approximately 100 people remained at the Lowry site.

On Dec. 1, 1979, the people at Lowry Air Force Base became part of the Strategic Air Command as Detachment 1 of the 4602nd Computer Services Squadron. Then, on May 1, 1983, Detachment 1, 2nd Communications Squadron transferred to Air Force Space Command as part of the 1020th Computer Services Squadron.

On Oct. 21, 1985, the unit was renamed Detachment 1, 2nd Communications Squadron within the 1st Space Wing structure. The present name was adopted June 1, 1989, as the unit became a stand-alone organization reporting directly to 1st Space Wing.

Location: The 1001st Space Systems Squadron is on Lowry AFB in Denver, Colo.

Transportation: Travelers who fly to Denver land at Stapleton Inaternational Airport, some three miles from Lowry AFB. Rental cars and limo service are available at Stapleton.



United States Air Force

FACT SHEET

1st Space Wing Site Support Public Affairs, Peterson AFB, Colo. 80914-5000 (719) 554-8236

1013th Combat Crew Training Squadron
Cheyenne Mountain Air Force Base, Colorado

The 1013th Combat Crew Training Squadron is part of Air Force Space Command's 1st Space Wing. The squadron activated on Dec. 13, 1985. Its headquarters is in Colorado Springs, Colo., and the squadron has operating locations in Colorado Springs, Holloman AFB, N.M., and Onizuka AFB, Calif.

This "one-of-a-kind" squadron conducts initial qualification training for space operations crew members. Its mission is to provide missile warning, space surveillance, and satellite operations training to all branches of the United States and allied military forces.

The squadron also serves as the primary Air Force unit that provides space operations orientation to general officer and senior staff personnel. In addition, they serve as the focal point for instructional technology for Air Force Space Command

When activated, 24 people were assigned to the squadron to develop and conduct initial academic training. Trainees included 682 military members who were assigned operational crew duties within Cheyenne Mountain AFB, PAVE PAWS sites, and the Ballistic Missile Early Warning System. The initial 1013th CCTS cadre also provided orientation and training development courses.

Since then the instructor and staff force has grown to nearly 200, and some 90 separate courses will be offered to give hands-on simulation training. Space operations simulators have been developed to support BMEWS, PAVE PAWS, and SATCOM initial qualification training. The SATCOM simulator alone costs $2.4 million and is considered a state-of-the-art training system.

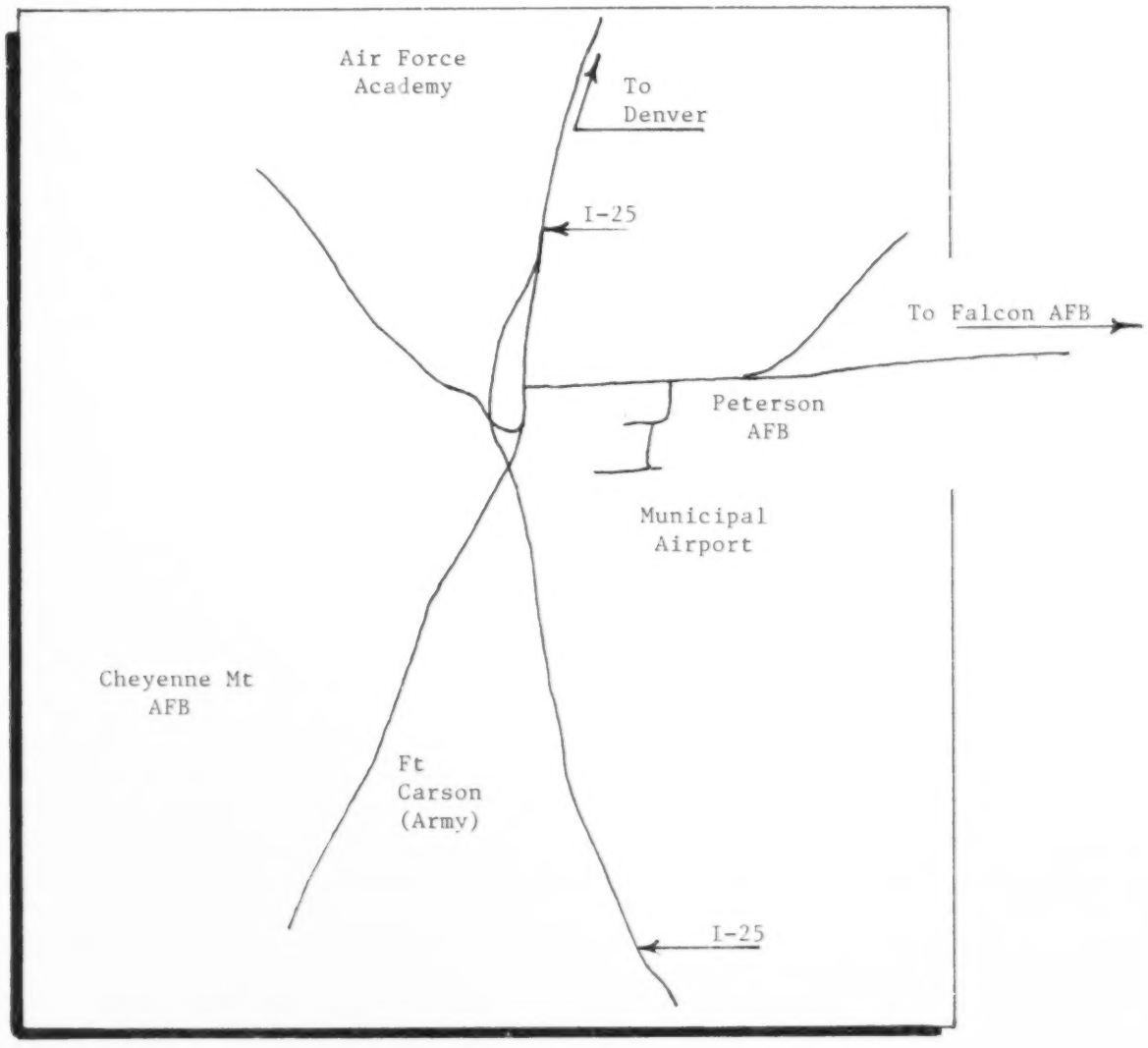
Initial qualification and orientation training programs have been developed to support the North American Aerospace Defense Command, United States Space Command, and 1st Space Wing operational units. The student load has increased to more than 1,500 students a year.

In April, 1989, the squadron began to assume all satellite operations training for Falcon AFB, Colo. With the addition of 40 new

courses the number of students will increase to more than 2,000 a year. The instructor and staff force will also increase, to about 250.

Though faced with tremendous growth and many challenges, members of the 1013th CCTS will ensure that their number one priority is to give effective space operations training. This is emphasized by the squadron motto: "Readiness Through Knowledge."

COLORADO SPRINGS



United States Air Force

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1015th Air Base Squadron
Sondrestrom Air Base, Greenland

The 1015th Air Base Squadron is the host unit at Sondrestrom Air Base, Greenland. The unit is assigned to the 12th Missile Warning Group whose headquarters is at Thule AB, Greenland.

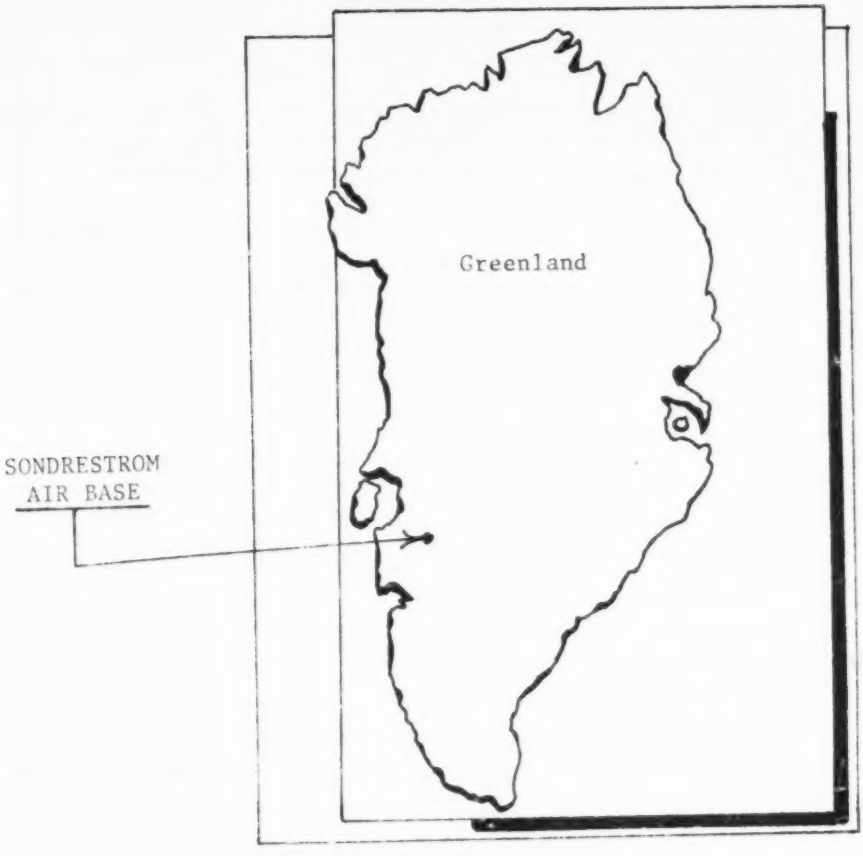
The mission of the 1015th ABS is to provide quality assurance evaluation of the operations and maintenance contractor, the Ballistic Missile Early Warning System logistics contractor and other designated contractual operations at the base. The unit also monitors the Danish Civil Aviation Administration operation of Kulusuk International Airport for the airlift resupply of the Distant Early Warning Line sites.

The commander of the 1015th Air Base Squadron is also the commander of Sondrestrom AB. The commander's duties include coordinating with and supporting the Danish commander-in-chief of Greenland, North Atlantic Treaty Organization, and Danish military organizations, through the resident Danish liaison officer.

The squadron commander is also responsible for providing search and rescue coordination for all of Greenland and its environs (three million square miles).

Location: Sondrestrom AB is 33 miles north of the Arctic Circle on the west coast of Greenland, the world's largest island (see map on next page).

Transportation: Travelers get to Sondrestrom AB via Military Airlift Command aircraft that fly out of McGuire AFB, N.J. SATO books commercial air transportation to Newark International Airport, Newark, N.J. Drivers should get on the New Jersey Turnpike south. The turnpike is less than a mile from the airport and directions are well marked. Leave the turnpike at exit #117. McGuire AFB is about three miles from the exit and directions are clearly marked. Bus and limo service from Newark International to McGuire AFB are also available.



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1ST SPACE WING